

S/N: 09/612,869  
Reply to Office Action of May 14, 2003

Atty Dkt No. FMCV 0113 PUS / 199-623/LIS

### Remarks

Favorable reconsideration of the above-identified application in view of the present response is respectfully requested. Claims 14-35 are pending. Claims 14-20 and claims 22-28 have been rejected, claim 21 has been objected to, and claims 29-35 have been allowed. On June 20, 2003, Applicants, through their attorneys, conducted a telephonic interview with the Examiner during which the bases for the Examiner's rejections were discussed in depth. Applicants wish to thank the Examiner for extending the courtesy of an interview which Applicants believe was very productive.

With respect to rejections under 35 U.S.C. § 103, as discussed during the June 20, 2003 interview and as acknowledged by the Examiner during the interview, U.S. Patent No. 5,935,364 to *Groendal, et al.* ("*Groendal*") does not contain the disclosure attributed to it by the Examiner in the May 14, 2003 Office Action. Specifically, *Groendal* does not contain any disclosure that a rigid substrate whether constructed of wood or particle board as set forth in *Groendal* (col. 4, ll. 37-39) is formed simultaneously with a foam layer. As discussed during the interview, given the variety of different materials which can serve as the rigid substrate, *Groendal* inherently discloses a substrate and a foam layer which are made separate and independent from one another and then, subsequent to their formation, are adhered to one another. Accordingly, there is no basis to conclude "that the pores of the foam layer would be substantially inherently impregnated with" portions of the rigid substrate as suggested in the May 14, 2003 Office Action. Consequently, as admitted by the Examiner during the June 20, 2003 interview, claims 16-20 and 22-28 are not disclosed by the combination of *Groendal* with U.S. Patent No. 4,850,578 ("*Fisher*"). The Examiner, accordingly, withdrew this rejection. Applicants contend that claims 16-20 and 22-28 are now in condition for allowance and respectfully request a notice to that effect.

With respect to the Examiner's 35 U.S.C. § 102(a) rejection of claims 14 and 15 as being anticipated by *Groendal*, as the Examiner admitted in the May 14, 2003 Office Action and again during the June 20, 2003 interview, *Groendal* does not teach the use of a

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preformed composite pad. In the May 14, 2003 Office Action, the Examiner, nevertheless, rejected claims 14 and 15 over *Groendal* under 35 U.S.C. § 102(a). The Examiner reasoned that the recitation of a "preformed" composite pad constituted a product-by-process limitation and then compared the end product of *Groendal* with the end product of claims 14 and 15 and found that *Groendal* contained every element of claims 14 and 15. During the June 14, 2003 interview, however, the Examiner acknowledged that the claim recitation "preformed" is not a product-by-process claim limitation. Accordingly, the reasoning enunciated in the Examiner's rejection of claims 14 and 15 collapses.

Applicants have reviewed the Examiner's interview summary and agree with the facts set forth therein. However, Applicants' do not agree with the conclusion. As set forth above, the Examiner has already admitted that *Groendal* does not teach a preformed composite pad. In view of the Examiner's further admission that the claim recitation "preformed" is not a product-by-process limitation, the 35 U.S.C. § 102 rejection must be withdrawn.

The law is clear that under 35 U.S.C. § 102, "anticipation requires that each and every element of the claimed invention be disclosed in the prior art." *Akzo N.V. vs. United States Int'l Trade Comm'n* 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986), cert denied, 482 U.S. 909 (1987).<sup>1</sup> Not only does anticipation require that each and every element of the claimed invention be disclosed in the prior art, but each element must be arranged in the prior art reference as they are arranged in the claim. *Lindemann Maschinenfabrik GmbH vs. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). In addition, "the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public." *Azko*, 1 USPQ 2d at 1245. Furthermore, it is well known that each limitation must be given patentable weight. In *re Angstadt*, 190 USPQ 215, 217 (CCPA 1976) ("We must give effect to all claim limitations.")

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<sup>1</sup> For the Examiner's convenience, copies of all the cases cited herein were e-mailed to the Examiner.

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*Groendal* does not place each and every element of the presently claimed invention in the possession of the public.

Applicants contend that claims 14 and 15 are now in condition for allowance and respectfully requests a notice to that effect.

Claim 21 has been objected to as being dependent upon a rejected independent claim, that being claim 14. Claim 21 has been amended to be written in independent form and to include the necessary intervening limitations. Applicants submit that claim 21 is also now in condition for allowance and respectfully requests a notice to that effect.

The present Amendment was not earlier presented because the Applicants believe that the prior Amendment had placed the application in a condition for allowance. The present Amendment does not raise any new issues and does not require further searching on the part of the Examiner. It is believed that the present Amendment places the application in condition for allowance. Entry is therefore solicited.

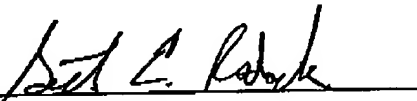
In light of this response and having addressed all of the issues raised in the Office Action, Applicants submit that this application is now in condition for allowance and respectfully requests a notice to that effect. If the Examiner believes that a further telephone conference will advance the prosecution of this application, such a conference is invited at the convenience of the Examiner.

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Please charge our Deposit Account No. 02-3978 in the amount of \$84.00 to cover the additional claims filing fee. Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978 - a duplicate of the Amendment Transmittal is enclosed for that purpose.

Respectfully submitted,  
SRINIVAS KOTHA ET AL.

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## Court of Appeals, Federal Circuit

Akzo N.V. v. U.S. International Trade Commission

No. 86-877

Decided December 22, 1986

## PATENTS

## 1. Patentability/Validity — Anticipation — Prior art (§115.0703)

U.S. International Trade Commission did not use impermissible "ipsissimus verbis" test in finding that claimed process for making aramid fibers was not anticipated, but rather properly found that prior art did not disclose such process to one of ordinary skill in art and that prior art reference that called for use of sulfuric acid did not call for use of 98 percent concentration critical to success of claimed process, since "concentrated sulfuric acid" is not inherently 98 percent sulfuric acid to one skilled in art.

## 2. U.S. International Trade Commission — In general (§115.01)

International Trade Commission's administrative protective order which permitted access, to confidential business information produced during discovery phase of investigation, by both parties' outside counsel, but not by management personnel or in-house counsel of either company was proper, since order did unilaterally immunize purportedly confidential documents from scrutiny of party challenging order, since order provided mechanism by which either party was free to object to designation of information as confidential, and since party challenging order failed to prove need for access to such information, nor harm to it from nondisclosure.

## 3. U.S. International Trade Commission — Burden of proof (§115.05)

International Trade Commission did not err in determining that unlawful importation of infringing aramid fibers violated Tariff Act's Section 337, 19 USC 1337, based upon its finding, supported by substantial evidence, that such importation will have tendency to injure domestic industry, despite evidence that domestic industry's profits from sale of fibers will increase notwithstanding such entry into market, since issue under Section 337 is not whether domestic industry profits will increase beyond current levels but whether importer's presence in market will substantially injure domestic industry's business during remaining life of patent.

## 4. U.S. International Trade Commission — Jurisdiction (§115.03)

International Trade Commission proceeding under Tariff Act's Section 337, 19 USC 1337, is not "inherently judicial" proceeding that must be adjudicated only by Constitution's Article III courts, even though private rights may be affected by Section 337 proceedings, since main thrust of Section 337 is to protect public interest from unfair trade practices in international commerce, and since Section 337 represents valid delegation of broad congressional power to achieve such purpose.

Appeal from U.S. International Trade Commission.

U.S. International Trade Commission investigation on behalf of E.I. du Pont de Nemours and Co., for exclusion of certain aramid fibers covered by U.S. patent, in which Akzo N.V., Enka B.V., Aramide Maatschappij v.o.f., and Akzona Incorporated, were designated as respondents. From exclusion order prohibiting importation, respondents appeal. Affirmed.

Denis McInerney, and Cahill Gordon & Reindel, both of New York, N.Y., C. Frederick Leydig, and Leydig, Voit & Mayer Ltd., both of Chicago, Ill., and Tom M. Schaumberg, Cecilia H. Gonzalez, and Plaia & Schaumberg, Chartered, all of Washington, D.C. (David R. Hyde, Laurence T. Sorkin, George Wailand, P. Kevin Castel, Charles S. Oslakovic, John Kilyk, Jr., Norval B. Galloway, and Robert H. Falk, and Hubbard, Thurman, Turner & Tucker, both of Dallas, Texas, on the brief), for appellants.

Catherine Field, Office of the General Counsel, U.S. International Trade Commission (Michael P. Mabile, assistant general counsel, on the brief), for appellee.

Daniel M. Gribbon, and Covington & Burling, both of Washington, D.C., Joseph M. Fitzpatrick, and Fitzpatrick, Cella, Harper & Scinto, both of New York, N.Y. (Harris Weinstein, James R. Atwood, Eugene D. Gulland, Dwight C. Smith, III, and Stephen H. Marcus, and John A. O'Brien, Henry J. Renk, Charles P. Baker, Laura A. Bauer, and Bruce C. Haas, on the brief), for intervenor-appellee E.I. du Pont de Nemours.

Before Markey, Chief Judge, and Davis and Nies, Circuit Judges.

### Davis, Circuit Judge.

This is an appeal by Akzo, N.V., Enka B.V., Aramide Maatschappij v.o.f., and Akzona Inc. (appellants or Akzo) from an exclusion order by the United States International Trade Commission (Commission or trial tribunal) pursuant to §§337 and 337a of the Tariff Act of 1930, 19 U.S.C. §§1337, 1337a (1982), prohibiting the importation into the United States of aramid fibers manufactured by Akzo in the Netherlands. We affirm.

#### I. Background; Issues; Scope of Review

A. *Background.* On April 18, 1984, E.I. du Pont de Nemours and Company (appellee or Du Pont) filed a complaint with the Commission under §337 of the Tariff Act of 1930 (19 U.S.C. §1337).<sup>1</sup> The complaint alleged that Akzo had engaged in unfair methods of competition and unfair acts including the importation, sale and marketing in the United States of certain aramid fibers,<sup>2</sup> produced in the Netherlands by a process purportedly covered by the claims of Du Pont's U.S. Letters Patent No. 3,767,756 (the Blades or '756 patent). In addition, the complaint charged Akzo with attempting both to exploit applications of aramid fibers and to penetrate markets for aramid fibers created by Du Pont. Finally, the complaint alleged that the effect or tendency of the unfair methods of competition and unfair acts was to destroy or substantially injure an industry, efficiently and economically operated, in the United States.

<sup>1</sup> 19 U.S.C. §1337 (1976) provides in pertinent part:

Unfair practices in import trade

(a) Unfair methods of competition declared unlawful

Unfair methods of competition and unfair acts in the importation of articles into the United States, or in their sale by the owner, importer, consignee, or agent of either, the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States, or to prevent the establishment of such an industry, or to restrain or monopolize trade and commerce in the United States, are declared unlawful, and when found by the Commission to exist shall be dealt with, in addition to any other provisions of law, as provided in this section.

<sup>2</sup> As indicated in Part II, *infra*, aramid fibers are the strongest commercial synthetic fibers known to man — about five times stronger than steel on an equal weight basis.

After evaluating Du Pont's complaint, the Commission instituted an investigation pursuant to §337(b), 19 U.S.C. §1337(b), and an administrative law judge (ALJ) was assigned to preside over the investigation.

The major substantive question before the ALJ (and now before us) is the validity and enforceability of Du Pont's Blades patent. Those issues, and the related facts and circumstances, are set forth and discussed in Part II, *infra*. The major procedural issue is whether Akzo was denied due process because Du Pont's confidential documents were not disclosed to appellants' management. This problem (together with an alleged violation of treaty rights) is considered in Part III, *infra*. The other issues presented to us are dealt with in Part IV, *infra*.

Following 14 days of hearing the ALJ issued an initial determination holding that there was a violation of §337(a) of the Tariff Act of 1930 in the unlawful importation or sale of certain aramid fibers produced overseas by means of a process that if practiced in the United States would infringe the Blades '756 patent, and that importation has the tendency to injure substantially an efficiently and economically operated industry in the United States.

Akzo filed a petition for review of the ALJ's initial determination on June 3, 1985. On July 15, 1985, the Commission decided to review only those portions of the initial determination pertaining to anticipation and obviousness of the Blades '756 patent under 35 U.S.C. §§102 and 103. Ultimately, the Commission affirmed the ALJ's findings and conclusions on anticipation and obviousness and determined that appellants had failed to prove the Blades '756 patent invalid. Having decided not to review the remainder of the initial determination, the Commission concluded that there was a violation of §337. Accordingly, on November 25, 1985, the Commission, after further consideration, entered an exclusion order limited to certain forms of aramid fibers produced by Akzo. The Commission's order became final on January 25, 1986 when the President declined to overrule it pursuant to §337(g).

B. *Issues.* On this appeal, Akzo raises a number of issues for us to resolve:

(1) whether the Commission's finding that claim 13 of the '756 patent was "not invalid" and "not unenforceable" is supported by substantial evidence;<sup>3</sup>

<sup>3</sup> Akzo presents no contention that, if claim 13 of the '756 patent is valid and enforceable, Akzo would not infringe if it used its same process in this country.

(2) whether Akzo's due process and treaty rights were violated in the Commission proceeding;

(3) whether the Commission, as a non-Article III tribunal, is constitutionally prohibited from adjudicating the validity and enforceability of patents;

(4) whether the Commission's finding that Akzo's sales of aramid fibers in the United States would have a tendency to "destroy or substantially injure" an industry economically and efficiently operated is supported by substantial evidence;

(5) whether the Commission's conclusion that Du Pont's value-in-use pricing did not violate the antitrust laws is correct and supported by substantial evidence; and

(6) whether it is a defense to Du Pont's complaint that Du Pont employed a solvent included in a polymerization process patented by Akzo.

C. *Scope of review.* This court defined our scope of review in cases appealed from the Commission in *Beloit Corp. v. Valmet OY*, (Order), 742 F.2d 1421, 223 USPQ 193 (1984), cert. denied, 105 S. Ct. 2706, 86 L. Ed. 2d 721 (1985). There we held that the court "does not sit to review what the Commission has not decided." 742 F.2d at 1423, 223 USPQ at 194. *Beloit* is distinguishable from this case because there the Commission specifically adopted only a portion of the presiding official's initial decision. See, e.g., *American Hospital Supply Corp. v. Travencol Laboratories, Inc.*, 745 F.2d 1, 5 n.13, 223 USPQ 577, 580 n.13 (Fed. Cir. 1984). In contrast, in the current case, the Commission merely determined not to review the remainder of the initial decision, choosing to conduct its own §§102 and 103 analysis. The Commission neither rejected any part of the initial determination nor did it say that it was taking no position on any part of it. Although the Commission limited its own review to patent validity under §§102 and 103, the fact that it affirmed the conclusion of the ALJ that there as a §337 violation makes reviewable those conclusions of the ALJ necessary for the Commission to have determined (as it did) that there was a §337 violation. *Accord Warner Brothers, Inc. v. U.S. International Trade Commission*, 787 F.2d 562, 229 USPQ 126 (Fed. Cir. 1986). This includes not only the §§102 and 103 issues of anticipation and obviousness, but also whether there was inequitable conduct before the Patent Office and the other issues decided by the Commission and the ALJ.\*

\*19 C.F.R. §210.53(h)(1986) provides that "[a]n initial determination ... shall become the determination of the Commission ... unless the

## II. Validity and Enforceability of the Blades Patent

A. *The Invention.* The Blades '756 patent, "Dry-Jet Wet Spinning Process," was issued on October 23, 1973 to Dr. Herbert Blades and immediately assigned to Du Pont. The patent describes a method that produces a high strength synthetic polyamide\* fiber which Du Pont has marketed under the trade name Kevlar. This fiber has an extraordinary as-spun strength, five times stronger pound for pound than steel, as well as a modulus (stretch resistance) equal to glass, eight times as high as industrial grade polyester, and twenty-five times as high as industrial nylon. Kevlar is also much more heat resistant than industrial-grade nylon or polyester. These extraordinary physical properties, as well as Kevlar's light weight and rustproof character, have enabled Du Pont to market it for use in a variety of applications including, but not limited to, roping, spacecraft and airplane parts, bullet resistant clothing and armor, tires, and boat hulls. Depending upon its use, Kevlar has been used as a substitute for steel, aluminum, asbestos, nylon, rayon, polyester, cotton, or cotton fiber. Kevlar is available as either a continuous rope or filament, or alternatively as a staple or pulp. Staple consists of short filaments which can be spun into yarn. Pulp is ground fiber most often used as an asbestos substitute.

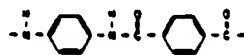
The procedure by which the synthetic fiber is manufactured involves dry spinning polyamides from coagulation solutions called dopes. In dry spinning, a specialized filter called a spinneret is placed a short distance from a bath of spinning dope that is extruded through a layer of gas and into an aqueous

Commission ... shall have ordered review of the initial determination or certain issues therein ...." In accepting the necessary conclusions of the ALJ we do not hold that the Commission must have concurred with each and every individual factual finding of the ALJ to support its conclusion.

\*Our recitation of the facts follows the ALJ's and the Commission's findings which are supported by at least substantial evidence. See *Surface Technology, Inc. v. U.S. International Trade Commission*, 801 F.2d 1336, 1340, 231 USPQ 192, 195 (Fed. Cir. 1986).

\*Polyamides are polymers containing amide linkages. Aromatic polymers are polyamides where the radicals linking the amide linkages constitute aromatic radicals. The polymer described in claim 13 of the Blades '756 patent is a wholly aromatic para-positioned polyamide.

coagulation bath.<sup>7</sup> The dope used in the Blades '756 patent consists of para-positioned aromatic polyamides dissolved in highly concentrated sulfuric acid and heated to around 100°C. The polyamide used is a high molecular weight poly(p-phenylene terephthalamide) (PPD-T).



The high molecular weight of the polyamide results in a high inherent viscosity<sup>8</sup> of approximately 4.4 when 20% PPD-T by weight is dissolved in approximately 100% sulfuric acid.

In 1969 Dr. Blades, one of Du Pont's research scientists, began to develop and conduct experiments aimed at producing a high-strength synthetic fiber. Blades exclusively employed a wet-spinning method in his early work, using PPD-T as well as other polymers. This early work had minimal success. Although the dry-spinning method was known by Du Pont scientists, a 1966 report indicated that the low solubility of PPD-T precluded use of the dry-spinning technique. In 1969, Du Pont's Dr. Peter Boettcher suggested to Blades that dry spinning might improve the end-results by influencing coagulation. Dr. Boettcher had learned about dry spinning from a Monsanto Morgan patent (Morgan '645 patent).

Blades' early experimentation with the dry-spinning process did not yield fiber with an increased tenacity despite the fact that dry spinning was known to improve fiber tenacity using other dopes. Blades' initial conclusion was that dry spinning would be unsuccessful with PPD-T. Nevertheless, he continued experimenting with the dry-spinning process, and, at his supervisor's suggestion, began using sulfuric acid as a solvent. Blades also redesigned and built a mixing device because of some difficulties he encountered mixing PPD-T with the sulfuric acid. Sulfuric acid was not an evident candidate as a solvent because it was known to react with the polymer and become degraded

at high temperatures. Blades discovered, however, that he could produce an improved fiber using 10.2% polyamide in about 100% sulfuric acid. Under this system he found that there was no difference in tensile strength of the fiber using a wet-spun or dry-spun method. PPD-T was a somewhat unusual choice of polymer for this work because of its characteristic rigidity caused by the placement of para-oriented aromatic rings in the chain. The para-positioning of the aromatic rings makes the polyamide much less soluble than analogous meta-positioned rings. But the fact is that, while meta-positioned polymers generally form only isotropic solutions, para-positioned polymers of Blades' invention form anisotropic solutions<sup>9</sup> at high concentrations.

In subsequent trials, Blades increased the concentration of PPD-T and obtained a significantly improved fiber, especially using the dry-spinning method. When the system was operated at room temperature, however, he found that undissolved polyamide clogged up the holes of the spinneret. He therefore heated the dope at these higher concentrations to dissolve all the polyamide and keep the system above the melting point. To his surprise, Blades discovered that there was little or no degradation of the polyamide at high temperatures. He explained this unexpected absence of degradation by theorizing that, when the system contains high concentrations of PPD-T, the sulfuric acid binds to the polymer and chemically deactivates it.

After numerous trials, Blades found that an optional fiber could be produced using PPD-T of 4.4 inherent viscosity at a 20% concentration in approximately 100% sulfuric acid. The dope was then heated to 95°C and dry spinning was then carried out at about 100°C. The resultant fiber had a tenacity of approximately two times that of previous experimental fibers.

In April 1971, Blades filed an application with the PTO claiming the method of making these aramid fibers, the initial application and two subsequent applications were rejected in large part on the basis of anticipation by the Morgan '645 and the Kwolek '542 patents which Du Pont had brought to the attention of the examiner. Initially the

<sup>7</sup> Dry spinning can be contrasted with wet spinning where the spinneret is placed directly into the spinning dope. Wet spinning is the process used to make a number of synthetic fibers including rayon and nylon.

<sup>8</sup> Inherent viscosity (inh) is a measure of viscosity used in polymer chemistry.

$$\eta_{inh} = \frac{\ln \eta_{rel}}{c} \quad \text{where } \eta_{rel} = \frac{\eta_{solution}}{\eta_{solvent}}$$

measured at the same temperature.

measured at the same temperature.

<sup>9</sup> An anisotropic solution exhibits optical birefringence (i.e., the liquid crystalline solution refracts light in two directions). This characteristic imparts a high degree of orientation to the spun fibers yielding a stiffer and stronger end product without requiring post-coagulation drawing as is required in other man-made fibers such as rayon and nylon.

examiner also rejected the application under 35 U.S.C. §103. Blades, however, was able to overcome the examiner's objections, and on May 2, 1973, the PTO gave notice of allowance of the Blades '756 patent. Blades assigned the patent rights to Du Pont.

B. *Validity*. Claim 13, the narrowest claim, is the only claim involved on this appeal.<sup>10</sup> Akzo says that that claim is invalid under 35 U.S.C. §§ 102 and 103. More specifically, Akzo argues that the Commission misconstrued the legal standard of anticipation and therefore erroneously held that the Blades '756 patent was not anticipated. In addition, appellants argue that the Commission failed properly to evaluate the prior art in determining obviousness *vel non*. Of course, it goes without elaboration that the Blades '756 patent enjoys a presumption of validity under 35 U.S.C. §282.

[1] As we have said, Akzo challenges the Commission's use of §102, claiming that that tribunal misinterpreted the legal standard of anticipation. Under 35 U.S.C. § 102, anticipation requires that each and every element of the claimed invention be disclosed in a prior art reference. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). In addition, the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public. *In re Brown*, 329 F.2d 1006, 1011, 141 USPQ 245, 249 (CCPA 1964). Akzo asserts, however, that the Commission wrongly used an "*ipsissimis verbis* test" in reaching its conclusion that the Blades '756 patent was not anticipated by the Morgan '645 disclosure.<sup>11</sup> We do not read the Commission's opinion as requiring such an "*ipsissimis verbis* test." Rather, we understand that opinion as simply finding that the prior art reference did not disclose, to one of ordinary skill in the art,<sup>12</sup> the

process for making the aramid fibers described in claim 13. The Commission noted that while the Morgan '645 patent called for the use of sulfuric acid, it did not call for the use of at least 98% concentrated sulfuric acid which was critical for the success of the Blades process. The Commission also concurred with the ALJ and found that concentrated sulfuric acid is not inherently 98% sulfuric acid to one skilled in the art.

Because we determine that the Commission did not use an incorrect legal standard under §102, we are bound to accept its and the ALJ's factual findings if supported by substantial evidence. 5 U.S.C. §706 (1982). As appellants themselves point out, anticipation under §102 is a factual determination. *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984). We must conclude that there is substantial evidence in the record supporting the Commission's conclusion that claim 13 of the Blades '756 patent was not anticipated by the prior art. As the Supreme Court noted in *Universal Camera v. NLRB*, 350 U.S. 474, 488 (1951), the substantial evidence standard does not allow a court to conduct a *de novo* investigation of the evidence on the record before it and reach an independent conclusion; rather, the court's review is limited to deciding whether there is sufficient evidence in the record considered as a whole to support the agency's findings. The mere fact that a reasonable person might reach some other conclusion is insufficient for this court to overturn the agency's conclusion. *See SSIH Equipment S.A. v. U.S. International Trade Commission*, 718 F.2d 365, 381, 218 USPQ 678, 691 (Fed. Cir. 1983) (additional views of Judge Nies).

The ALJ concluded, after extensive analysis, that the claimed invention of the Blades '756 patent was not anticipated by prior art, including the Morgan '645 patent. He noted that, while the Morgan '645 patent teaches the use of an airgap, the use of airgap in and of itself does not guarantee an improved fiber. This was obvious from Blades' early work. The ALJ also found that sulfuric acid in any concentration was not disclosed as a solvent in the Morgan '645 patent; or did that patent disclose PPD-T in its optically anisotropic state. Moreover, the ALJ found that the Morgan '645 patent was not an enabling disclosure with regard to the claimed spinning dope. Neither the 18% concentration of PPD-T nor the heating of the dope to achieve this concentration was disclosed in the Morgan '645 patent. The ALJ also rejected appellants' arguments that the

<sup>10</sup> Claim 13 reads as follows:

A method comprising extruding a spinning dope from an orifice through a layer of gas and into an aqueous bath at a temperature of under 50°C said dope comprising a polyamide and a solvent of sulfuric acid of at least 98% concentration at a concentration of at least 40 grams of said polyamide per 100 ml. of solvent, said polyamide having an inherent viscosity of at least 3.0 and being poly(p-phenylene terephthalamide).

<sup>11</sup> An "*ipsissimis verbis*" test requires the same terminology in the prior art in order to find anticipation.

<sup>12</sup> The Commission made specific findings on the skill of the art. It concluded that the skill in the art was high — that of a doctorate or post-doctorate in chemistry.

Blades process was anticipated by the Hill and Smith patents which were referenced in the Morgan '645 patent. This would have required Blades randomly to pick and choose among a number of different polyamides, a plurality of solvents, and a range of inherent viscosities. The ALJ rejected such "random picking and choosing" of prior art, relying on *In re Arkley*, 455 F.2d 586, 587, 172 USPQ 524, 526 (CCPA 1972), and concluded in effect that the anticipatory reference must disclose in the prior art a thing substantially identical with the claimed invention. In a somewhat more limited consideration — restricted to the concentration of sulfuric acid in the Blades patent — the Commission itself reached the same result.

Accordingly, we hold that there is substantial evidence in the record as a whole to sustain the Commission's (including the ALJ's) findings that the Blades process was not anticipated by any prior art.<sup>11</sup>

Appellants say, as an alternative to their §102 argument, that the trial tribunal erred when it failed to find that the Blades '756 patent would have been obvious under 35 U.S.C. §103 in view of the Morgan '645 and Kwolek '542 patents. It is now established that obviousness is a question of law based on factual inquiries which include:

- (1) the scope and content of the prior art;
- (2) the difference between prior art and the claims at stake;
- (3) the level of ordinary skill in the art; and
- (4) objective evidence of nonobviousness (secondary factors).

Such objective indications as commercial success and long-felt but unresolved needs, failure of others, copying, and unexpected results are relevant facts relating to the issue of validity. See, e.g., *In re DeBlauwe*, 736 F.2d 699, 222 USPQ 191 (Fed. Cir. 1984) (obviousness a question of law to be determined on the facts). Since obviousness is a question of law, we are not bound by the Commission's ultimate determination on the matter of §103 obviousness. See *Corning*

*Glass Works v. U.S. International Trade Commission*, 799 F.2d 1559, 1565 & n.5, 230 LSPQ 822, 826 & n.5 (Fed. Cir. 1986).

In the proceedings before the Commission, Du Pont premised its defense of nonobviousness on the basis that the prior art — mainly that the Morgan '645 patent and the Kwolek '542 patent — actually led away rather than toward the Blades process. The Commission found Du Pont's expert witness' testimony to be compelling. That witness, Dr. Uhlmann, explained why the Morgan '645 patent, when considered with other prior art references, including the Kwolek '542, Bair '941, and Cipriani '793 patents, would not have rendered the invention of Blades '756 patent obvious. The Kwolek '542 patent calls for conventional wet or dry spinning and calls for concentrations of PPD-T far lower than required by the Blades process. The Bair '941 patent does not disclose heating sulfuric acid with PPD-T to achieve an anisotropic solution. While the Morgan '745 patent discloses air-gap spinning, its emphasis is on meta-oriented polymers. Based on these differences, Dr. Uhlmann concluded that one skilled in the art would *not* combine them or be led to the Blades invention.

As the ALJ recognized, prior art references before the tribunal must be read as a whole and consideration must be given where the references diverge and teach away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Moreover, appellants cannot pick and choose among individual parts of assorted prior art references "as a mosaic to recreate a facsimile of the claimed invention." 721 F.2d at 1552, 220 USPQ at 312. In this case, the ALJ found that Akzo's expert witnesses could not show how the prior art patents could be brought together to render the Blades '756 invention obvious without reconstructing the teachings of those patents assisted by hindsight.

The secondary considerations also compelled the Commission to make a finding of nonobviousness. The commercial success of Du Pont's Kevlar patent has been enormous and its range of uses substantial. Du Pont is still developing commercial applications for Kevlar, having spent significant amounts of money in developing both new uses and new markets for the product. Commercial success is, of course, a strong factor favoring non-obviousness. *Simmons Fastener Corp. v. Illinois Tool Works, Inc.*, 739 F.2d 1573, 1575-76, 222 USPQ 774, 777, (Fed. Cir. 1984), *cert. denied*, 471 U.S. 1065 (1985). Moreover, as the ALJ noted, Blades solved a problem that Du Pont research scientists had

<sup>11</sup> Appellants cite this court's opinion in *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 782, 227 USPQ 773, 778-79 (Fed. Cir. 1985), as supporting their contention that the Blades '756 patent was anticipated by the prior art. *Titanium Metals* is easily distinguishable from this case. There, a single reference disclosed a range of alloys including that claimed by appellant. In this case, the Commission found that neither the Morgan '645 patent nor any other prior art reference disclosed the Blades '756 process.



been tackling for years. The Blades process represents a solution to a long-felt need and practitioners in the field immediately recognized that that process was a remarkable advancement in polymer spinning technology. Indeed, as brought out in this appeal, even one of Akzo's scientific reports repeatedly expressed concern for degradation of PPD-T and amazement at the disclosure of the Blades '756 process.

We agree, therefore, with the Commission's determination that the Blades '756 patent is not invalid for anticipation or obviousness.

C. *Alleged inequitable conduct before the Patent and Trademark Office (PTO)*. Appellants urge that Du Pont misled the patent examiner in two respects: first, that Du Pont submitted an affidavit to overcome the examiner's obviousness objections that failed to compare the Blades process with the closest prior art; and, second, that Du Pont persistently argued that the Morgan '645 patent and the Kwolek '542 patent did not anticipate the Blades patent.

In *J.P. Stevens & Co. v. Lex Tex Ltd.*, 747 F.2d 1553, 223 USPQ 1089 (Fed. Cir. 1984), cert. denied, 106 S. Ct. 73 (1985), this court articulated a two-prong test for establishing inequitable conduct before the PTO. To render a patent unenforceable, the proponent of the inequitable conduct must first establish by clear and convincing evidence that there was a material misrepresentation or omission of information, and then establish a threshold level of intent on the part of the applicant. See also *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1577-78, 224 USPQ 409, 414-15 (Fed. Cir. 1984).

Our major standard for materiality is whether a reasonable examiner would consider the omission or misrepresentation important in deciding whether to issue the patent.<sup>14</sup> Materiality and intent must also be considered together: the more material the omission or misrepresentation, the less intent that must be shown to reach a conclusion of inequitable conduct. *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1363, 220 USPQ 763, 773 (Fed. Cir.), cert. denied, 469 U.S. 821, 224 USPQ 520 (1984).

We uphold the Commission's findings and conclusion that Du Pont's affidavit or arguments before the examiner did not constitute material misrepresentation. As Akzo concedes, the examiner had both the Morgan

'645 patent and the Kwolek '542 patents before him throughout the examination process. It was on the basis of these two patents that Du Pont's first three applications were rejected. The mere fact that Du Pont attempted to distinguish the Blades process from the prior art does not constitute a material omission or misrepresentation. The examiner was free to reach his own conclusion regarding the Blades process based on the art in front of him. Nor does Du Pont's affidavit, advocating a particular interpretation of the Morgan '645 and Kwolek '542 patents (albeit favorable to Du Pont's position), show any intent to mislead the PTO. Du Pont's intent was not to mislead, but rather to distinguish prior art from the Blades process and demonstrate to the examiner that the Blades process and demonstrate to the examiner that the Blades process would not have been obvious in light of Morgan '645 and Kwolek '542. The sum of it is that, because we cannot see either a proved material misrepresentation or a proved intent to mislead, we must conclude that Akzo has not met its burden of proving inequitable conduct before the PTO.

### III. Due Process and Treaty Rights

A. *Due Process*. This aspect of the appeal concerns the Commission's procedures with respect to the private parties' confidential information. On May 21, 1984, the ALJ issued an administrative protective order pertaining to confidential business information, as defined in the Commission's Rules, 19 C.F.R. §210.30(d)(7) (1976), that would be produced during the discovery phase of the investigation.

In general, this order permitted access to all such confidential information by Akzo's and Du Pont's outside counsel but not by management personnel or in-house counsel of either private company. At a preliminary conference held June 22, 1984, Akzo made the first of three unsuccessful attempts to modify the protective order. Arguing that there was a substantial overlap between the Commission's investigation and an action brought by Akzo against Du Pont them (and still) pending in the United States District Court for the District of Delaware, Akzo moved to align the protective orders by modifying the ALJ's protective order so that its terms coincided with those of a protective order earlier issued by the District Court in the Delaware action. The ALJ denied Akzo's motion on July 6, 1984.

By letter dated June 27, 1984, Akzo requested that the protective order be amended

<sup>14</sup> This standard is identical to the PTO standard of materiality. 37 C.F.R. §1.56(a).

to include three designated members of Akzo's in-house counsel. On July 6, 1984, the ALJ concluded that Akzo failed to demonstrate the requisite need to warrant granting Akzo's in-house counsel access to Du Pont's confidential business information. Akzo renewed its motion to modify the protective order on February 8, 1985, this time urging that both Akzo's in-house counsel and the general manager of Akzo's Industrial Fiber Group should be granted limited access to Du Pont's confidential business information. Because Akzo failed (in the ALJ's view) to demonstrate a need for either its in-house counsel or its general manager to have access to the requested confidential material, the ALJ denied Akzo's motion on February 21, 1985.

Akzo now contends that the protective order, issued by the ALJ on May 21, 1984, effectively deprived it of its rights to confrontation, to rebuttal, and to effective assistance of counsel. According to Akzo, under the terms of the protective order, the parties' designation of materials as confidential had the effect of "unilaterally immunizing them from scrutiny by the opposing party." Moreover, Akzo maintains that the system established by the protective order completely denied Akzo "access to all of the critical evidence on which the decision against it was based."

[2] Our examination of the challenged protective order, as it was enforced, shows Akzo's charges to be groundless. The protective order provides, *inter alia*, that confidential business information "shall be disclosed at any hearing only *in camera* before the commission or the administrative law judge." Although the protective order enabled either party to designate business information as confidential, such a designation did not "unilaterally immunize" purportedly confidential documents from scrutiny by the opposing party. In the first place, all the protected information was freely available to outside counsel who could fully consider it, although they were not free to show or repeat it to Akzo's management or in-house counsel. Second, paragraph 10 of the protective order provided a mechanism by which either party was free to object to its adversary's designations at any stage of the proceeding. According to paragraph 10, if either party disagreed with respect to the designation of business material as confidential, that party "shall confer [with the supplier] as to the status of the subject information proffered within the context of this order." In the event that the parties failed within 10 days to reach agreement as to the proper status of the information, the protective order pro-

vided that either party could submit the issue to the ALJ or the Commission for resolution. The mechanism of paragraph 10 could also be used to permit disclosure to particular persons of otherwise classified material. Although, as mentioned earlier, Akzo attempted to modify the protective order on three separate occasions, Akzo never invoked the dispute resolution procedures of paragraph 10 to challenge Du Pont's characterization of business information as confidential or as not disclosable to particular individuals. Third, the protective order expressly permitted other exceptions to be made by the ALJ or the Commission.

In denying Akzo's various motions to amend the protective order, the ALJ relied on the Commission's decision in *Certain Rotary Wheel Printers*, Inv. No. 337-TA-145, 5 ITRD 1933 (Nov. 4, 1983). According to *Rotary Wheel Printers*:

[p]rotection of confidential information is crucial to the Commission's ability to carry out its statutory responsibilities. In addition, review after discovery and the evidentiary hearing are completed would provide an inadequate remedy. The inappropriate release of confidential information can never be fully remedied.

The Commission has traditionally been reluctant to release confidential information where not absolutely necessary.

5 ITRD at 1935.

Thus, implicit in Akzo's due process attack on the protective order is the position that, in the interests of fundamental fairness, it was "absolutely necessary" for Akzo's in-house counsel and general manager to have access to Du Pont's confidential business information. However, "[i]n section 337 investigations, it is the exception rather than the rule to release confidential information to in-house counsel." *Id.*

The primary justification for the Commission's reluctance to grant adversary management and in-house counsel access to confidential business information is that, in order to discharge its statutory responsibilities within the strict statutory time limits, the Commission is heavily dependent on the voluntary submission of information. Disclosure of sensitive materials to an adversary would undoubtedly have a chilling effect on the parties' willingness to provide the confidential information essential to the Commission's fact-finding processes. The Commission has resolved the difficult and controversial question of the role of in-house counsel by taking a conservative position on the side of optimum shielding of business



information. Obviously, where confidential material is disclosed to an employee of a competitor, the risk of the competitor's obtaining an unfair business advantage may be substantially increased. This general Commission position is neither unreasonable nor arbitrary. It represents an appropriate balancing between the needs demanded by the Commission's process and the parties' need for participation by its in-house personnel.

This is especially true because there is no *per se* rule against disclosure to either a competitor's in-house counsel or management representative. *Rotary Wheel Printers* established, and the ALJ employed, a three-part balancing test to determine whether, to whom, and under what conditions to release confidential information. Factors to be considered include the party's need for the confidential information sought in order to adequately prepare its case, the harm that disclosure would cause the party submitting the information, and the forum's interest in maintaining the confidentiality of the information sought. 5 ITRD at 1937.

After reviewing the record, the ALJ concluded that Akzo failed to demonstrate clearly a need for granting access to confidential business information to either Akzo's in-house counsel or key management officials. The ALJ also found that disclosure would cause substantial harm to Du Pont's competitive position. These particular rulings cannot be faulted. The court understands that all information relating to patent validity and enforceability (*see* Part II, *supra*) was promptly made fully available to all. As for the information bearing on the important question of whether Akzo's importation of aramid fibers would tend to destroy or substantially injure Du Pont's business (*see* Part IV, *infra*), it is obvious that that confidential information — relating to Du Pont's business, activities, plans and expectations — should not be made available (unless, perhaps, where absolutely necessary for a fair hearing) to a direct competitor like Akzo. That such full access was not absolutely necessary to appellants' making of their own case is shown by the crucial fact that Akzo was at all times perfectly free to offer its own market projections as well as to reveal its own activities, forecasts, and interpretations. Both sides could present to the Commission their own information on those matters without knowing those of the other side's.

Akzo argues, however, that the denial of its motions to modify the protective order effectively denied its due process right to participate in its own defense. The conten-

tion is that Akzo was subjected to serious adverse governmental action on the basis of evidence which Akzo was never permitted to know and "personally" refute. In support of this position, Akzo invokes §555(b) of the Administrative Procedure Act which was made applicable to §337 proceedings by the 1974 Amendments to the Tariff Act of 1930. Under §555(b), "[a] party is entitled to appear in person or by or with counsel or other duly qualified representative in an agency proceeding." 5 U.S.C. §555(b). However, Akzo was represented by competent and experienced outside counsel throughout the proceedings; these counsel were aware of all confidential information. Further, Akzo fails to recognize that "the affirmative grant of the right to appear apparently bestowed by Section 555(b) is not blindly absolute, without regard to the status or nature of the proceedings and concern for the orderly conduct of public business." *DeVyver v. Warden, U.S. Penitentiary*, 388 F.Supp. 1213, 1222 (M.D. Pa. 1974) citing *Easton Utilities Commission v. Atomic Energy Commission*, 424 F.2d 847, 852 (D.C. Cir. 1970). Whatever else §555(b) guarantees to parties to an administrative proceeding under §337, it does not mandate disclosure of significant confidential information to in-house counsel and corporate executives of a business competitor — where that information is fully available to outside counsel. Akzo's contention withers in the face of unrefuted evidence that more than 90 people representing Akzo, including numerous expert witnesses and members of the battery of four law firms comprising Akzo's defense team, had unrestricted access to Du Pont's confidential information.

Akzo has also failed to demonstrate that it suffered actual harm under the confidentiality procedures instituted by the ALJ. Although Akzo's insiders were denied access to Du Pont's economic and market forecasts with respect to the production and sale of aramid fibers, Akzo was not prevented (as we have pointed out) from offering its own projections into evidence under the cover of confidentiality. It is difficult to see how Akzo was prejudiced.

Finally, we have neither found nor been directed to any judicial decision in this country mandating, in the circumstances present here, that business confidential information *must* be made to inside management. On the contrary, we are aware, from the practice of our own court, that records in appeals to us are frequently classified in large part, and are presumably not available to the management of the opposing party. Moreover, there are a substantial number of decisions uphold-

ing confidentiality comparable to that accepted by the Commission. Akzo tells us that most of these involved only pretrial discovery (and not evidence at a hearing or trial) and that the others are also distinguishable. We do not stop to examine these arguments because, at the least, these decisions (a) show that there is no holding to the contrary of the one we now make and (b) strongly suggest the validity of carefully tailored protective orders allowing exceptions to be made if adequate proof is made.<sup>1</sup>

**B. Treaty rights.** As an alternate ground for reversal, Akzo argues that, because the proceedings below discriminated against Akzo on the basis of its Dutch nationality, they violate United States treaty obligations. We disagree with Akzo's premise that there was discrimination here. Essentially, Akzo employs a *non sequitur* to support its position. The core of Akzo's claim is that it was denied the rights that would have been afforded a domestic firm sued for patent infringement in a district court. According to Akzo, this "inferior treatment" by the Commission constitutes discrimination on the basis of nationality. That analysis misses the mark. The appropriate inquiry is whether Akzo was afforded the same rights afforded to domestic firms in a §337 proceeding before the Commission. Clearly, Akzo has failed to demonstrate that it suffered from discriminatory treatment. First, under the express terms of the protective order, both Akzo and Du Pont were bound by identical procedures regarding confidentiality and discovery. Neither party was allowed access to the other party's confidential business information. Second, the same argument was rejected in *Certain Spring Assemblies and Components Thereof*, Inv. No. 337-TA-88, 216 USPQ 225, *aff'd sub nom. General Motors Corp. v. U.S. International Trade Commission*, 687 F.2d 476, 215 USPQ 484 (CCPA 1982), *cert. denied*, 459 U.S. 1105 (1983). In that case, respondent unsuccessfully raised certain U.S.-Canadian treaties as a defense to enforcement of §337. The Commission observed:

Section 337 does not discriminate against foreign corporations by virtue of their for-

eign status. It applies to foreign and domestic corporations alike. Section 337 gives the Commission jurisdiction over products imported from a foreign country, even if they are manufactured and/or imported by a U.S. corporation. The Commission's jurisdiction lies in unfair acts occurring in connection with the importation of goods into the United States or their sale, and it extends to all persons engaged in such unfair acts.

216 USPQ at 231 (emphasis added).

#### IV. Other Issues

In this part we consider four separate issues raised by appellants: (1) whether the Commission properly found that continued importation of Akzo's product would substantially injure or tend to injure Du Pont; (2) whether adjudication of §337 actions by a non-Article III tribunal is unlawful; (3) whether Du Pont's pricing practices (with respect to its aramid products) violate the antitrust laws; and (4) whether Du Pont committed inequitable conduct by infringing Akzo's own patent.

**A. Tendency to destroy or substantially injure.** The ALJ concluded (and we have upheld) that Akzo violated §337(a) by the unlawful importation or sale of certain aramid fibers produced in the Netherlands by means of a process which if practiced in the United States would infringe the Blades '756 patent. Such acts, long considered to be violative of §337, clearly constitute unfair acts for the purposes of the statute. See, e.g., *In re Chain Door Locks*, USITC Pub. No. 770 (Apr. 1976), 191 USPQ 272 (USITC 1976); *In re Von Clemm*, 229 F.2d 441, 108 USPQ 371 (CCPA 1955); *In re Amtorg Trading Corp.*, 75 F.2d 826, 24 USPQ 315 (CCPA), *cert. denied*, 296 U.S. 576 (1935).

However, unfair acts, without more, are legally insufficient to support a finding of a §337 violation. That provision declares unlawful "[u]nfair methods of competition and unfair acts in the importation of articles . . . the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States." Thus, to prove a violation of §337, the complainant must show both an unfair act and a resulting detrimental effect or tendency. *New England Butt Co. v. U.S. International Trade Commission*, 756 F.2d 874, 876, 225 USPQ 260, 261 (Fed. Cir. 1985). As this court recently held in *Textron, Inc. v. U.S. International Trade Commission*, 753 F.2d 1019, 224 USPQ 625 (Fed. Cir. 1985), "section 337 has consis-

<sup>1</sup> This case differs from *Viscofan S.A. v. U.S. International Trade Commission*, 787 F.2d 544, 552, 229 USPQ 118, 124 (Fed. Cir. 1986), because here (but not in *Viscofan*) the confidentiality problem was directly related to the propriety of the exclusion order. Accordingly, we have reviewed the merits of the confidentiality actions. See *American Telephone and Telegraph Co. v. U.S. International Trade Commission*, 626 F.2d 841, 842, 206 USPQ 111, 112 (CCPA 1980).

tently been interpreted to contain a distinct injury requirement of independent proof." 753 F.2d at 1028, 224 USPQ at 631 (citations omitted); accord, *Corning Glass Works v. U.S. International Trade Commission*, 799 F.2d 1559, 230 USPQ 822 (Fed. Cir. 1986); *Warner Brothers, Inc. v. U.S. International Trade Commission*, 787 F.2d 562, 564, 229 USPQ 126, 127 (Fed. Cir. 1986).

According to *Textron*, "Congress may well have included this separate requirement . . . to insure that the extreme and internationally provocative remedy contemplated [by §337] — exclusion of imports from particular countries — would be implemented only when this is compelled by strong economic reasons." 753 F.2d at 1028-29, 224 USPQ at 631 (citations omitted). It follows that the mere concurrence of an unfair act and some resulting injury is not necessarily sufficient, in itself, to establish a violation of §337. "Congress has directed that the remedy of section 337, involving as it does the act of the sovereign in closing our borders to certain imports, be exercised only in those instances where at least there is proof of a tendency to substantially injure the subject industry." *Corning Glass Works v. U.S. International Trade Commission*, 799 F.2d 1559, 1567, 230 USPQ 822, 827 (Fed. Cir. 1986) (emphasis in original).

Not only is an injury determination intimately wed to the particular facts of each case, but also the determination of injury is precisely the type of question which Congress has committed to the expertise of the Commission. Thus, on appeal, our review of an injury determination is limited to deciding whether the Commission's decision is supported by substantial evidence. 19 U.S.C. §1337(c) (1982); 5 U.S.C. §706 (1982); *SSIH Equipment S.A. v. U.S. International Trade Commission*, 718 F.2d 365, 371, 218 USPQ 678, 684 (Fed. Cir. 1983); *General Motors Corp. v. U.S. International Trade Commission*, 687 F.2d 476, 215 USPQ 484 (CCPA 1982), cert. denied, 459 U.S. 1105 (1983). In other words, we must decide "whether substantial evidence supports the facts relied on and whether the Commissioner's [sic] determination, on the record, is arbitrary, capricious, or an abuse of discretion." *Corning Glass Works*, 799 F.2d at 1568, 230 USPQ at 828. As we noted in *Corning Glass Works*, "the question of quantum of injury is not one on which it would be appropriate for this court to put forth a legal standard." *Id.* Nor are we allowed to substitute our own judgment for that of the Commission. *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971). Of course, a decision is supported by substantial

evidence if it is supported by "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consolidated Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938).

Our review of the record in this case compels the conclusion that the Commission's determination — that Akzo's unfair imports of aramid fibers will have a tendency to injure Du Pont substantially — is supported by substantial evidence. The Commission based its injury determination on a prediction of the future effect of Akzo's unfair imports on the domestic industry. There is substantial support for this determination. The record reflects Akzo's intent and capacity to enter the United States aramid fibers market, Du Pont's resulting loss of revenue, and a probable price reduction by Du Pont in response to Akzo's entry into the United States market. Nonetheless, Akzo urges this court to overturn the Commission's exclusion order and deny relief to Du Pont. Akzo first contends that its projected share of the U.S. market during the remaining life of the '756 patent is *de minimis*. It would be both unwise and improper for this court to establish some arbitrary market-share benchmark as a prerequisite to a finding of a §337 violation and we decline to do so. It is sufficient that the record supports the Commission's conclusion that, upon entry into the U.S. market, Akzo will capture a significant share of the domestic market, if not in relative percentage figures than certainly in absolute dollar figures.

[3] Second, Akzo maintains that, notwithstanding its entry into the market, Du Pont's aramid fibers sales volume, revenues and profits will all increase during the remaining life of the patent. But Akzo mischaracterizes the proper standard for measuring injury. The issue is not whether Du Pont's sales, revenues and profits will increase beyond their 1985 levels but rather whether Akzo's presence in the market will substantially injure Du Pont's business during the 1986-1990 period (the remaining life of the Blades '756 patent).

As Du Pont correctly points out, nothing in §337 requires a showing that the domestic industry will be utterly deprived of profitability. "Where the unfair practice is the importation of products that infringe a domestic industry's . . . patent right, even a relatively small loss of sales may establish, under section 337(a), the requisite injury . . ." *Bally, Midway Mfg. Co. v. U.S. International Trade Commission*, 714 F.2d 1117, 1124, 219 USPQ 97, 102 (Fed. Cir. 1983). This proposition is entirely consistent with the legislative history of §337. In a House

Report discussing the application of §337 to unfair competition involving patent infringement. Congress stated: "Where unfair methods and acts have resulted in *conceivable losses of sales*, a tendency to substantially injure such industry has been established." See House Comm. on Ways and Means, Trade Reform Act of 1973, H.R. Rep. No. 571, 93d Cong. 1st Sess. 78 (1973) (emphasis added); accord *In re Von Clemm*, 229 F.2d 441, 445, 108 USPQ 371, 374 (CCPA 1955).

Because substantial evidence supports the facts relied upon by the Commission in making its determination that Akzo's unfair imports would tend to injure Du Pont substantially, we must affirm its injury determination. Akzo has failed to demonstrate that the commission's determination is arbitrary, capricious, or an abuse of discretion.

A contrary result would emasculate the protections of §337 with respect to high technology ventures. Typically, in high technology industries, acute competition forces competitors to commit substantial resources to research and development in hopes of generating profits before either their patents expire or before technological advance makes the products obsolete. Thus, innovators frequently resign themselves to losses during the early life of their patents with the expectation that, if product development and marketing efforts are successful, profits earned during the later life of other patents will provide sufficient compensation for their endeavors.

On this record, Du Pont's aramid fibers industry can be said to furnish a classic illustration. Although Du Pont has undertaken extensive product development and marketing efforts since 1973, the company had not earned any return on its investment through 1984. Du Pont anticipates that it will realize its first positive net operating earnings from its aramid fibers production in 1985.

In reaching its injury determination, the Commission permissibly recognized that the aramid fibers industry is in transition from a period requiring extremely high investment of resources to a period when the industry will finally realize a return on that investment. In these circumstances, diminished profits, lower return on investment, and reduced sales are all indicative of substantial injury.

[4] *B. Adjudication of §337 actions by a non-Article III tribunal.* Apparently employing the "kitchen sink" or "let's try anything" approach to appellate advocacy, Akzo

raises an additional challenge to the Commission's proceedings. Relying primarily on *Northern Pipeline Construction Co. v. Marathon Pipe Line Co.*, 458 U.S. 50 (1982), Akzo characterizes the current §337 proceedings as "inherently judicial" involving "essentially private rights" and concludes that the Constitution requires adjudication of §337 issues by Article III courts. Both Akzo's premise and conclusion are flawed. Although it is true that private rights may be affected by §337 determinations, the thrust of the statute is directed toward the protection of the public interest from unfair trade practices in international commerce. As this court recognized in *Young Engineers, Inc. v. U.S. International Trade Commission*, 721 F.2d 1305, 1315, 219 USPQ 1142, 1152 (Fed. Cir. 1983), a §337 proceeding "is not purely private litigation 'between the parties' but rather is an 'investigation' by the Government into unfair methods of competition or unfair acts in the importation of articles into the United States." Moreover, "[t]he power to regulate commerce with foreign nations is expressly conferred upon Congress, and being an enumerated power is complete in itself, acknowledging no limitations other than those prescribed in the Constitution." *Buttfield v. Stranahan*, 192 U.S. 470, 492 (1904). Properly viewed, §337 and its predecessor provisions represent a valid delegation of this broad Congressional power for the public purpose of providing an adequate remedy for domestic industries against unfair practices beginning abroad and culminating in importation. *Sealed Air Corp. v. U.S. International Trade Commission*, 645 F.2d 976, 985-86, 209 USPQ 469, 478 (CCPA 1981).

*C. Du Pont's pricing practices.* Under Du Pont's value-in-use pricing program, the price at which Du Pont sells aramid fibers varies in accordance with the particular end-use to which the purchaser puts the product. Although Du Pont's customers may use the aramid fibers for whatever purpose they desire, they are required to pay Du Pont the price appropriate to the ultimate end-use. To that objective, Du Pont requires its customers to agree that they will use the aramid fibers for the specific end-use for which they are purchased or, if the aramid fibers are put to a different end-use or are resold, that they will pay Du Pont an amount representing the difference between the initial purchase price and the price for the ultimate end-use.

According to Akzo, each such agreement constitutes a "contract . . . in restraint of trade," and the entire pattern of agreements, policing and surveillance constitutes a "combination . . . in restraint of trade" within the

meaning of §1 of the Sherman Act. Although the Commission specifically found that "the adoption of Du Pont's value-in-use pricing strategy reflects price competition with other substitute products for various end uses," Akzo continues to argue that Du Pont's value-in-use pricing for aramid fibers violates the antitrust laws.

Plainly, value-in-use pricing is not *per se* an anticompetitive restraint on trade within the meaning of the antitrust laws. In *Carter-Wallace, Inc. v. United States*, 449 F.2d 1374, 171 USPQ 359 (Ct. Cl. 1971), one of this court's predecessor courts sustained against an antitrust challenge a pricing system in which purchasers paid a lower price for the drug meprobamate when used in certain combination drugs. The court noted that "the vendee firms, if one looks at their business as a whole, are not prohibited or deterred from making any use they wish of the meprobamate." *Id.* at 1379, 171 USPQ at 362. Moreover, "[i]t is even reasonable to assume, nothing else appearing, that if the vendees change their minds after purchasing the drug at the lower price they can make unrestricted use of it by paying the difference between that lower price and the consent-decree price." *Id.* at 1379 n.4, 171 USPQ at 362 n.4.

Similarly, under Du Pont's value-in-use pricing system, its customers may use their aramid fibers for whatever purpose they desire, including resale, providing they pay Du Pont the price appropriate to the ultimate end-use. Contrary to Akzo's position that Du Pont's pricing system is anticompetitive and an unreasonable restriction on use and resale, the Commission found and the record establishes that Du Pont's value-in-use pricing has the procompetitive effect of increasing the volume of aramid fibers that are sold.

Akzo also claims that the ALJ erred in not making specific findings on market definition. But, as this court recently observed, the trier of fact need not engage in the meaningless exercise of market definition where no wrongful conduct has been shown. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 875, 228 USPQ 90, 100 (Fed. Cir. 1985). Equally groundless is Akzo's contention that the ALJ erred by not shifting to Du Pont the burden of demonstrating that its pricing policies had procompetitive effects. The Supreme Court, in *National Collegiate Athletic Ass'n v. Board of Regents*, 468 U.S. 895 (1984), made abundantly clear that the burden of proof shifts only where the evidence shows that the challenged practice has the "hallmarks of anticompetitive behavior," namely, that "it has operated to raise prices and reduce output." *Id.* at 113. Conversely, in

this case, the evidence establishes and the Commission found that the alleged "restraint," value-in-use pricing, results in reduced prices and increased output.

**D. Du Pont's alleged inequitable conduct in manufacture.** During the proceedings below, Akzo asserted that Du Pont infringed Akzo's U.S. patent 4,308,374 ('374) patent) on a polymerization solvent system used in the formulation of the polymer which is spun into aramid fibers by means of the Blades '756 process. Notwithstanding §337(c) of the Tariff Act of 1930 which provides that "[a]ll legal and equitable defenses may be presented," the ALJ struck Akzo's equitable defense and refused to hear the underlying evidence. On appeal, Akzo contends that the ALJ thus denied Akzo the opportunity to establish a meritorious defense to Du Pont's §337 claim. For two reasons we disagree that this defense was meritorious.

Our conclusion is first supported by the recent decision of the District Court for the Eastern District of Virginia holding the '374 patent invalid for obviousness under 35 U.S.C. §103. *Akzo N.V. v. E.I. DuPont de Nemours & Co.*, Civil Action No. 85-0459-R (E.D. Va. April 24, 1986), on appeal to this court, No. 86-1327/1358. Under that decision, Akzo's infringement claim has been adversely decided and Du Pont has a legal right to do the act claimed to be infringing. Consequently, there is as yet no legitimate basis for Akzo's equitable defense. See *Young Engineers, Inc. v. U.S. International Trade Commission*, 721 F.2d 1305, 1315-16, 219 USPQ 1142, 1152 (Fed. Cir. 1983). Second, this same result is compelled in this instance by this court's decision in *SSIH Equipment S.A. v. U.S. International Trade Commission*, 718 F.2d 365, 218 USPQ 678 (Fed. Cir. 1983). In *SSIH*, we held that allegedly "inequitable conduct" is not a defense to a §337 action where the conduct occurred after issuance of the complainant's patent and involved a different patent. *Id.* at 378-79, 218 USPQ at 689-90. In this case, Du Pont's '756 patent was issued in 1973 and pertains to a spinning process; Akzo's '374 patent was issued in 1981 and pertains to a polymerization process.

### Conclusion

For these reasons, we affirm the Commission's exclusion order prohibiting the impor-

\* That appeal was argued on November 7, 1986 before the same panel of judges as heard the current appeal.

Hence, the proper conversion reference is phenylacetone/P<sub>2</sub>P when possessed for the purpose of manufacturing methamphetamine. Multiplying 49,896 grams of phenylacetone/P<sub>2</sub>P by the conversion factor of 2.08 yields 103,784 grams, or over 103 kilograms of cocaine. Under section 2D1.1's Drug Quantity Table, 103 kilograms of cocaine merits a base offense level of 36—exactly the same base offense level employed by the district court.

## IV.

We hold that the district court properly set Hyde's base offense level at 36. Accordingly, we affirm the decision of the district court sentencing Hyde to ten years imprisonment followed by three years of supervision, imposing a special assessment of \$50, and declaring him ineligible for federal benefits for five years.

AFFIRMED.



## In re Hans OETIKER.

No. 91-1026.

United States Court of Appeals,  
Federal Circuit.

Oct. 13, 1992.

Inventor submitted patent application for an improvement in a metal hose clamp which added a preassembly hook. The United States Patent and Trademark Office Board of Patent Appeals and Interferences rejected the application as a prima facie case of obviousness, and inventor appealed. The Court of Appeals, Pauline Newman, Circuit Judge, held that: (1) concept of a prima facie case was applicable to various technologies including those outside field of chemical arts; (2) Board, by explaining that patent examiner's rejection constituted prima facie case of obviousness, did not

make a new rejection for appeal purposes; and (3) invention, although simple, did not present prima facie case of obviousness.

Reversed.

Nies, Chief Judge, and Plager, Circuit Judge, concurred with opinions.

## 1. Patents §32

The prima facie case is a procedural tool of patent examination, allocating burdens of going forward as between examiner and applicant; the term "prima facie case" refers only to the initial examination step.

See publication Words and Phrases for other judicial constructions and definitions.

## 2. Patents §32

Patent examiner bears initial burden, on review of prior art or on any other ground, of presenting prima facie case of unpatentability, and if that burden is met, burden of coming forward with evidence or argument shifts to the applicant; after evidence or argument is submitted by applicant in response, patentability is determined on the totality of the record by preponderance of evidence with due considerations to persuasiveness of argument.

## 3. Patents §36(2)

If examination at initial stage does not produce prima facie case of unpatentability, then, without more, the applicant is entitled to a grant of the patent.

## 4. Patents §113(7)

In reviewing the patent examiner's decision on appeal, the United States Patent and Trademark Office Board of Patent Appeals and Interferences (Board) must necessarily weigh all of the evidence and argument; an observation by the Board that the examiner made prima facie case is not improper, as long as ultimate determination of patentability is made on entire record.

## 5. Patents §113(8)

Patent applicant failed to establish that a holding of prima facie obviousness by the United States Patent and Trademark Office Board of Patent Appeals and Interferences (Board) was a new rejection



of application for appeal purposes where application was fully prosecuted, and examiner had issued final rejection; mere use of words "prima facie obviousness" by the examiner, when those words had not been used earlier did not make rejection on such grounds by the Board a new rejection.

#### 6. Patents ⇨32

Concept of the prima facie case has broad applicability for patent applications; that a prima facie case may be established, or rebutted, by different forms of evidence in various technologies does not restrict the concept to any particular field of technology including those outside field of chemical arts.

#### 7. Patents ⇨16(1)

To rely on a reference to another industry as a basis for rejection of patent applicant's invention, reference must either be in field of applicant's endeavor, or if not, then be reasonably pertinent to particular problem with which inventor was concerned.

#### 8. Patents ⇨16(3)

It is necessary to use common sense in deciding, for purposes of assessing obviousness of invention, which fields a person of ordinary skill would reasonably be expected to look for solution to the problem facing the inventor who seeks a patent.

#### 9. Patents ⇨32

To present a prima facie case of obviousness to reject patent application, it is insufficient to use combination of elements from nonanalogous sources in a manner that reconstructs patent applicant's invention only with the benefit of hindsight; there must be some reason, suggestion, or motivation found in the prior art whereby person of ordinary skill in the field of the invention would make the combination.

#### 10. Patents ⇨16.15

Rejection of inventor's hose clamp fastener as presenting prima facie case of obviousness was improper where, in making unpatentability determination, United

States Patent and Trademark Office Board of Patent Appeals and Interferences had relied on references to garment industry without any showing that person of ordinary skill would reasonably be expected or motivated to look to garment fasteners to solve problem of fastening hose clamp. 35 U.S.C.A. § 103.

Paul M. Craig, Jr., Washington, D.C., argued for appellant.

John W. Dewhirst, Office of the Sol., Arlington, Va., argued for appellee. With him on the brief were Fred E. McKelvey, Sol. and Robert D. Edmonds, Associate Sol.

Before NIES, Chief Judge, NEWMAN and PLAGER, Circuit Judges.

PAULINE NEWMAN, Circuit Judge.

Hans Oetiker appeals the decision of the United States Patent and Trademark Office Board of Patent Appeals and Interferences, holding unpatentable claims 1-14 and 16-21, all of the claims in patent application No. 06/942,694.<sup>1</sup> Oetiker appeals on procedural and substantive grounds.

### I

## PROCEDURE

### Background

All of the claims were finally rejected for obviousness in terms of 35 U.S.C. § 103. The Board, upholding the rejection, stated that "the examiner has ... established a *prima facie* case of obviousness ... which is unrebutted by any objective evidence of nonobviousness". Oetiker stated that this Board holding was the first rejection of his claims for being "*prima facie* obvious", and filed rebuttal evidence with a petition for reconsideration. The Board declined to consider the new evidence or change its decision.

Oetiker states that a holding of *prima facie* obviousness means, in patent examination, that the claimed invention is subject

1. *Ex parte Oetiker*, No. 89-2230 (Bd.Pat.App. & Interf. May 31, 1990; on reconsideration, Au-

gust 23, 1990).

to a rebuttal; that the evidence of obviousness, such as to be considered, will be Oetiker's statement by patent application invitation to evidence.

Thus Oetiker the Board of new grounds of rejection the claims in the Oetiker office. Previously filed on the basis of the demand to the accordance

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to a rebuttable presumption of obviousness; that is, if the applicant can provide evidence or argument in support of unobviousness, such evidence and argument will be considered, and the question of patentability will be redetermined on the entire record. Oetiker states that a rejection made in the words "*prima facie* obvious" is understood by patent examiners and practitioners as an invitation to provide such rebuttal evidence.

Thus Oetiker argues that a holding by the Board of *prima facie* obviousness is a new ground of rejection, for during prosecution the examiner did not reject the claims in these words. Treating it as such, Oetiker offered affidavit evidence not previously filed, and requested reconsideration on the basis of this new evidence, or remand to the examiner for this purpose, in accordance with 37 C.F.R. § 1.196(b):

§ 1.196(b) ... When the Board ... makes a new rejection of an appealed claim, the appellant may exercise either of the following two options ...:

(1) The appellant may submit ... a showing of facts ... and have the matter reconsidered by the examiner in which event the application will be remanded to the examiner....

(2) The appellant may have the case reconsidered under § 1.197(b) by the Board ... upon the same record.

The Board on reconsideration granted neither of the options of § 1.196(b), stating that it had not made a new rejection.

At argument before this court the Commissioner's counsel suggested that Oetiker could refile his patent application, pay a new fee, and obtain review of this new evidence in a new examination. Oetiker states that he was entitled to a complete examination, and did not get it.

#### Discussion

[1, 2] The *prima facie* case is a procedural tool of patent examination, allocating the burdens of going forward as between examiner and applicant. *In re Spada*, 911 F.2d 705, 707 n. 3, 15 USPQ2d 1655, 1657 n. 3 (Fed.Cir.1990). The term "*prima facie* case" refers only to the initial examination

step. *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed.Cir.1984); *In re Rinehart*, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). As discussed in *In re Piasecki*, the examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability. If that burden is met, the burden of coming forward with evidence or argument shifts to the applicant.

After evidence or argument is submitted by the applicant in response, patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument. See *In re Spada*, *supra*; *In re Corkill*, 771 F.2d 1496, 1500, 226 USPQ 1005, 1008 (Fed.Cir.1985); *In re Caveney*, 761 F.2d 671, 674, 226 USPQ 1, 3 (Fed.Cir. 1985); *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed.Cir.1984).

[3] If examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent. See *In re Grabiak*, 769 F.2d 729, 733, 226 USPQ 870, 873 (Fed.Cir.1985); *In re Rinehart*, *supra*.

[4] In reviewing the examiner's decision on appeal, the Board must necessarily weigh all of the evidence and argument. An observation by the Board that the examiner made a *prima facie* case is not improper, as long as the ultimate determination of patentability is made on the entire record. *In re Piasecki*, 745 F.2d at 1472, 223 USPQ at 788; *In re Rinehart*, 531 F.2d at 1052, 189 USPQ at 147.

[5] The record here reveals that the application was fully prosecuted. References were cited and applied by the examiner, the applicant responded with argument, and the examiner then issued a final rejection, stating why he was not persuaded by the applicant's argument. On review the Board stated that its decision was reached "after careful consideration of the appealed claims, the evidence of obviousness relied upon by the examiner and the arguments advanced by the appellant and the examiner". The Board explained why it was un-



persuaded by Oetiker's arguments on appeal. We discern no irregularity in the procedure. The Board, in explaining that the examiner's rejections constituted a *prima facie* case of obviousness, did not make a new rejection.

[6] Oetiker also argues that the concept of a "*prima facie* case of obviousness" has no role outside of the chemical arts. Oetiker refers to the origins of this term in the chemical practice, where properties may not be apparent from chemical structure. Oetiker distinguishes mechanical inventions, where the properties and workings of a mechanical device are apparent in the drawing of the structure. We think that the PTO is correct in treating the concept of the *prima facie* case as of broad applicability, for it places the initial burden on the examiner, the appropriate procedure whatever the technological class of invention. That a *prima facie* case may be established, or rebutted, by different forms of evidence in various technologies does not restrict the concept to any particular field of technology. "[T]he requirement of unobviousness in the case of chemical inventions is the same as for other types of inventions". *In re Johnson*, 747 F.2d at 1460, 223 USPQ at 1263. This procedural tool is recognized in fields outside of the chemical arts. *E.g.*, *In re Benno*, 768 F.2d 1340, 226 USPQ 683 (Fed.Cir.1985); *In re McCarthy*, 763 F.2d 411, 226 USPQ 99 (Fed.Cir.1985); *In re De Blauwe*, 736 F.2d 699, 222 USPQ 191 (Fed.Cir.1984).

The Board's usage of the term *prima facie* was imprecise for, as discussed *supra*, the term "*prima facie* obvious" relates to the burden on the examiner at the initial stage of the examination, while the conclusion of obviousness *vel non* is based on the preponderance of evidence and argument in the record. However, it was clear that the Board did not make a new rejection. Therefore the Board did not err in declining to consider at that stage the proffered evidence of commercial success.

## II

### THE MERITS

Oetiker's invention is an improvement in a "stepless, earless" metal clamp, a hose

clamp that was generally described in an earlier '004 patent of Oetiker, but that differs in the presence of a feature that is described as a preassembly "hook". This "hook" serves both to maintain the preassembly condition of the clamp and to be disengaged automatically when the clamp is tightened.

The cited references were Oetiker's earlier-granted '004 patent, combined with a certain Lauro '004 patent. Lauro describes a plastic hook and eye fastener for use in garments, in which "unitary tabs of sewing needle puncturable plastic material . . . are affixable to clothing and the like by sewing". Oetiker argues that there is no suggestion or motivation to the artisan to combine the teachings of the cited references, and that Lauro is nonanalogous art. Oetiker concludes that these references were improperly combined; that a person of ordinary skill, seeking to solve the problem facing Oetiker, would not look to the garment art for the solution. Oetiker also argues that even if combined the references do not render the claimed combination obvious.

The examiner stated that "since garments commonly use hooks for securement", a person faced with the problem of unreliable maintenance of the pre-assembly configuration of an assembly line metal hose clamp would look to the garment industry art. The examiner explained further by stating that "Appellant's device as disclosed could be utilized as part of a garment". The Board did not repeat or support the examiner's argument, or discuss its relevance. Indeed, the argument is not supportable. However, the Board held that the Lauro reference, although not "within the appellant's specific field of endeavor" is nonetheless "analogous art" because it relates to a hooking problem, as does Oetiker's invention.

The Board apparently reasoned that all hooking problems are analogous. At least, that is the argument now pressed by the Commissioner. The Commissioner states in his brief on appeal that "A disengagea-

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ble catch, such as that used by Oetiker, is a common everyday mechanical concept that is variously employed in door latches and electrical and other switches, as well as in the hook and eye apparatus disclosed by Lauro". No such references were cited, however. While this court may take judicial notice of common everyday mechanical concepts in appropriate circumstances, the Commissioner did not explain why a "catch" of unstated structure in an electrical switch, for example, is such a concept and would have made Oetiker's invention obvious. Indeed, the Commissioner did not respond to Oetiker's argument that the cited references provide no teaching or suggestion that Lauro's molded hook and eye fastener, even if combined with Oetiker's '004 clamp, would achieve Oetiker's purpose.

[7, 8] In order to rely on a reference as a basis for rejection of the applicant's invention, the reference must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. See *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir.1986). Patent examination is necessarily conducted by hindsight, with complete knowledge of the applicant's invention, and the courts have recognized the subjective aspects of determining whether an inventor would reasonably be motivated to go to the field in which the examiner found the reference, in order to solve the problem confronting the inventor. We have reminded ourselves and the PTO that it is necessary to consider "the reality of the circumstances", *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979)—in other words, common sense—in deciding in which fields a person of ordinary skill would reasonably be expected to look for a solution to the problem facing the inventor.

[9, 10] It has not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated to

look to fasteners for garments. The combination of elements from non-analogous sources, in a manner that reconstructs the applicant's invention only with the benefit of hindsight, is insufficient to present a *prima facie* case of obviousness. There must be some reason suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself. *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 678-79, 7 USPQ2d 1315, 1318 (Fed.Cir. 1988); *In re Geiger*, 815 F.2d 686, 687, 2 USPQ2d 1276, 1278 (Fed.Cir.1987); *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1147, 227 USPQ 543, 551 (Fed.Cir. 1985).

Oetiker's invention is simple. Simplicity is not inimical to patentability. See *Good-year Tire & Rubber Co. v. Ray-O-Vac Co.*, 321 U.S. 275, 279, 64 S.Ct. 593, 594, 88 L.Ed. 721 (1944) (simplicity of itself does not negate invention); *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1572, 1 USPQ2d 1593, 1600 (Fed.Cir.) (the patent system is not foreclosed to those who make simple inventions), *cert. denied*, 481 U.S. 1052, 107 S.Ct. 2187, 95 L.Ed.2d 843 (1987).

We conclude that the references on which the Board relied were improperly combined. Accordingly, the Board erred in holding the claims unpatentable under section 103. The rejection of claims 1-4 and 16-21 is

REVERSED.

NIES, Chief Judge, concurring.

I agree with the panel decision and write only to express my understanding of the language that there must be some teaching, reason, suggestion, or motivation found "in the prior art" or "in the prior art references" to make a combination to render an invention obvious within the meaning of 35 U.S.C. § 103 (1988). Similar language appears in a number of opinions<sup>1</sup>

1. See, e.g., *Symbol Technologies, Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1576, 19 USPQ2d 1241, 1246 (Fed.Cir.1991); *In re Gorman*, 933 F.2d 982, 986,

18 USPQ2d 1885, 1888 (Fed.Cir.1991); *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed.Cir.1990); *Smithkline Diagnostics, Inc. v.*

and if taken literally would mean that an invention cannot be held to have been obvious unless something specific in a prior art reference would lead an inventor to combine the teachings therein with another piece of prior art.

This restrictive understanding of the concept of obviousness is clearly wrong. Other statements in opinions express the idea more generally. We have stated, for example, that the test is: "whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention," *In re Gorman*, 933 F.2d at 986, 18 USPQ2d at 1888, and "what the combined teachings ... would have suggested to one of ordinary skill in the art," *In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed.Cir.1991). We have also stated that "the prior art as a whole must suggest the desirability ... of making the combination." *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed.Cir.), *cert. denied*, 488 U.S. 825, 109 S.Ct. 75, 102 L.Ed.2d 51 (1988); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed.Cir.1984).

I believe that it would better reflect the concept of obviousness to speak in terms of "from the prior art" rather than simply "in the prior art." The word "from" expresses the idea of the statute that we must look at the obviousness issue through the eyes of one of ordinary skill in the art and what one would be presumed to know with that background. What would be obvious to one of skill in the art is a different question from what would be obvious to a layman. An artisan is likely to extract more than a layman from reading a reference.

In any event, variance in the language used in opinions does not change the nature of the statutory inquiry. Under section 103, subject matter is unpatentable if it

*Helena Laboratories Corp.*, 859 F.2d 878, 887, 8 USPQ2d 1468, 1475 (Fed.Cir.1988); *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed.Cir.1988); *In re Stencel*, 828 F.2d 751, 755, 4 USPQ2d 1071, 1073 (Fed.Cir. 1987); *Ashland Oil, Inc. v. Delta Resins & Ref.*

"would have been obvious ... to a person having ordinary skill in the art." While there must be some teaching, reason, suggestion, or motivation to combine existing elements to produce the claimed device, it is not necessary that the cited references or prior art specifically suggest making the combination. *In re Nilssen*, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed.Cir.1988). Such suggestion or motivation to combine prior art teachings can derive solely from the existence of a teaching, which one of ordinary skill in the art would be presumed to know, and the use of that teaching to solve the same or similar problem which it addresses. *In re Wood*, 599 F.2d 1032, 1037, 202 USPQ 171, 174 (CCPA 1979). See, also, *EWP Corp. v. Reliance Universal, Inc.*, 755 F.2d 898, 906-07, 225 USPQ 20, 25 (Fed.Cir.), *cert. denied*, 474 U.S. 843, 106 S.Ct. 131, 88 L.Ed.2d 108 (1985); *In re Sernaker*, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed.Cir.1983). See also, *Ex parte Clapp*, 227 USPQ 972, 973 (Bd.Pat.App. & Inter. 1985) ("To support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or implicitly suggest the claimed combination or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.").

In sum, it is off the mark for litigants to argue, as many do, that an invention cannot be held to have been obvious unless a suggestion to combine prior art teachings is found in a specific reference.

PLAGER, Circuit Judge, concurring.

I join in the carefully-reasoned and well-written opinion of Judge Newman. With regard to Part I dealing with the PTO procedure, her explanation of the meaning and application of the 'prima facie case' concept should help clarify an area that remains marked by a lack of clarity. The

*ractories, Inc.*, 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed.Cir.1985), *cert. denied*, 475 U.S. 1017, 106 S.Ct. 1201, 89 L.Ed.2d 315 (1986); *In re Grabiak*, 769 F.2d 729, 732, 226 USPQ 870, 872 (Fed.Cir.1985).

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need for that discussion, however, illustrates the pitfalls of the 'prima facie' practice of the PTO, and the difficulties created by this particular legalistically convoluted concept.

An applicant for a patent is entitled to the patent unless the application fails to meet the requirements established by law. It is the Commissioner's duty (acting through the examining officials) to determine that all requirements of the Patent Act are met. The burden is on the Commissioner to establish that the applicant is not entitled under the law to a patent. *In re Warner*, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967), cert. denied 389 U.S. 1057, 88 S.Ct. 811, 19 L.Ed.2d 857 (1968). In rejecting an application, factual determinations by the PTO must be based on a preponderance of the evidence, and legal conclusions must be correct. *In re Caveyney*, 761 F.2d 671, 674, 226 USPQ 1, 3 (Fed.Cir.1985).

The process of patent examination is an interactive one. See generally, Chisum, *Patents*, § 11.03 et seq. (1992). The examiner cannot sit mum, leaving the applicant to shoot arrows into the dark hoping to somehow hit a secret objection harbored by the examiner. The 'prima facie case' notion, the exact origin of which appears obscure (see *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed.Cir.1984)), seemingly was intended to leave no doubt among examiners that they must state clearly and specifically any objections (the prima facie case) to patentability, and give the applicant fair opportunity to meet those objections with evidence and argument. To that extent the concept serves to level the playing field and reduces the likelihood of administrative arbitrariness.

But the ultimate decision that must be made by the PTO in the examination process, and by this court on appeal, is not whether a prima facie case for rejection was made; the only question is whether, on the whole record, the applicant has met the statutory requirements for obtaining a patent. When a final rejection is described in terms of whether a prima facie case was made, that intermediate issue diverts atten-

tion from what should be the question to be decided.

Specifically, when obviousness is at issue, the examiner has the burden of persuasion and therefore the initial burden of production. Satisfying the burden of production, and thus initially the burden of persuasion, constitutes the so-called prima facie showing. Once that burden is met, the applicant has the burden of production to demonstrate that the examiner's preliminary determination is not correct. The examiner, and if later involved, the Board, retain the ultimate burden of persuasion on the issue.

If, as a matter of law, the issue is in equipoise, the applicant is entitled to the patent. Thus on appeal to this court as in the PTO, the applicant does not bear the ultimate burden of persuasion on the issue. In the end there is no reason there or here to argue over whether a 'prima facie' case was made out. The only determinative issue is whether the record as a whole supports the legal conclusion that the invention would have been obvious.



**In re Harry C. DECKLER.**

No. 92-1110.

United States Court of Appeals,  
Federal Circuit.

Oct. 14, 1992.

Rehearing Denied; Suggestion for  
Rehearing In Banc  
Declined Nov. 25, 1992.

Patent applicant appealed decision of Board of Patent Appeals and Interferences which affirmed examiner's rejection of applicant's claims. The Court of Appeals, Friedman, Senior Circuit Judge, held that applicant, as losing party in interference proceeding, was not entitled to patent covering claims that applicant admitted were

regards the Powersville site, Canadyne should have given notice to appellees, at the latest, in the fall of 1983, more than two years prior to the time Canadyne actually gave notice. Canadyne's failure to comply with the notice provisions bars recovery under the policies and summary judgment in favor of appellees is proper. *E.g.*, *Protective Ins. Co. v. Johnson*, 256 Ga. 713, 352 S.E.2d 760 (1987) (17-month delay in giving insurer notice unreasonable as a matter of law and bars insured from recovery under policy); *Caldwell v. State Farm Fire & Cas. Ins.*, 192 Ga.App. 419, 385 S.E.2d 97 (1989) (notice six months after service of summons unreasonable as a matter of law, precluding recovery). Our holding necessarily disposes of the issue whether appellees are responsible for Canadyne's pre-notice expenditures.

## II. PREJUDICE TO INSURER

[3] Canadyne contends that the Georgia Supreme Court has not ruled on the issue whether an insurance company must demonstrate prejudice in order to achieve a forfeiture of coverage on the grounds that the insured failed to comply with the notice provision in the policy. Upon review of Georgia caselaw, we find Georgia law clear on this issue. In *Protective Ins. Co. v. Johnson*, 352 S.E.2d at 760, the Georgia Supreme Court ruled that a 17-month delay in notice was unreasonable as a matter of law and held the insured "barred from collecting benefits from Protective Insurance Company." *Johnson*, 352 S.E.2d at 761. The Court made no mention of a requirement of prejudice to the insurer resulting from the delayed notice in order to bar recovery under the policy.

The Georgia Court of Appeals repeatedly confirms the rule in Georgia that an insurer need not prove prejudice in order to avoid paying benefits to the insured who fails to comply with the notice provision in the policy. In *Townsend*, the court stated that "prejudice or the lack thereof to the insurer is not a factor in assessing whether or not the delay in notice is excusable...." *Townsend*, 397 S.E.2d at 63. See also *Caldwell v. State Farm Fire & Cas. Ins.*, 385 S.E.2d at 99 ("State Farm is not required to show that it was prejudiced by the failure to give notice

where the requirement is, as here, a valid condition precedent to coverage"); *Richmond v. Georgia Farm Bureau Mut. Ins. Co.*, 231 S.E.2d at 250 ("there is no need for an insurer to prove it was prejudiced by an insured's failure to give notice"). The district court correctly determined Georgia law. The appellees need not show prejudice to prevail.

## CONCLUSION

For the reasons set forth above, we hold that the district court properly entered summary judgment in favor of appellees and we affirm the district court.

AFFIRMED.



In re Stephen E. WRIGHT.

No. 92-1437.

United States Court of Appeals,  
Federal Circuit.

July 20, 1993.

Patent applicant sought judicial review of denial of his application. The Court of Appeals, Rich, Circuit Judge, held that working example provided in specification would not have enabled skilled artisan at time of application to practice full scope of claim or even scope of more limited claim.

Affirmed.

### 1. Patents ¶99

"Enablement," as used in context of patent specification, refers to statutory requirement that patent specification contain written description of claimed invention and manner and process of making and using that invention in such full, clear, concise, and exact terms that any person skilled in art to which invention pertains or with which it is most



nearly connected can make and use invention; to be "enabling," specification must teach those skilled in the art how to make and use full scope of invention without undue experimentation. 35 U.S.C.A. § 112.

See publication Words and Phrases for other judicial constructions and definitions.

## 2. Patents ⇨324.51, 324.55(2)

Question whether patent specification meets statutory enablement requirement is reviewed de novo; however, underlying findings of fact are reviewed for clear error. 35 U.S.C.A. § 112.

## 3. Patents ⇨99, 100

Nothing more than objective enablement is required of patent specification; accordingly, it is irrelevant whether necessary teaching is provided through broad terminology or illustrative examples. 35 U.S.C.A. § 112.

## 4. Patents ⇨114.19

Patent and Trademark Office has initial burden to set forth reasonable explanation as to why it believes that scope of protection provided by claim is not adequately enabled by description of invention in specification of patent application, and this burden includes providing reasons for doubting any assertions in specification as to scope of enablement; once Office meets this burden, applicant must provide suitable proofs indicating that specification is indeed enabling. 35 U.S.C.A. § 112.

## 5. Patents ⇨99

Specification for patent application was not adequate to enable skilled artisan at time of application to carry out, without undue experimentation, steps necessary to practice full scope of claim or even to practice more limited claim; claim was directed to processes for making and using vaccines against pathogenic viruses, which would have encompassed vaccines against Acquired Immune Deficiency Syndrome (AIDS), but specification included single working example of vaccine for chickens against single strain of avian virus. 35 U.S.C.A. § 112.

1. Application Serial No. 06/914,620, filed on October 2, 1986, is a continuation of Serial No.

## 6. Patents ⇨99

In deciding whether patent specification meets enablement requirement, question whether specification would enable skilled artisan to make and use claimed invention without undue experimentation is determined by reference to state of art at time of patent application, rather than state of art at some later time. 35 U.S.C.A. § 112.

## 7. Patents ⇨114.25

On appeal from rejection of patent application, court would not consider arguments which were not set forth in applicant's brief.

## 8. Affidavits ⇨17

Affidavits concerning specification for patent application were inadequate to show that specification was sufficient to enable artisan at time of application to have made and used full scope of claimed invention, where each affidavit contained only unsupported conclusory statements as to ultimate legal question and affidavits did not even state that affiants had reviewed specification at issue. 35 U.S.C.A. § 112.

Peter M. Peer, Mallinckrodt & Mallinckrodt, Salt Lake City, UT, argued for appellants. With him on the brief was Philip A. Mallinckrodt.

Teddy S. Gron, Associate Sol., Office of the Sol., Arlington, VA, argued for appellee. With him on the brief was Fred E. McKelvey, Sol. Of counsel were Richard E. Schaffer, John W. Dewhirst, Albin F. Drost and Lee E. Barrett.

Before RICH, NEWMAN, and RADER, Circuit Judges.

RICH, Circuit Judge.

Dr. Stephen E. Wright appeals from the January 16, 1992 decision of the Board of Patent Appeals and Interferences (Board) of the United States Patent and Trademark Office (PTO) sustaining the Examiner's rejection of claims 1-23, 15-42, and 45-48 of application Serial No. 06/914,620<sup>1</sup> under 35

06/469,985, filed February 25, 1983, now abandoned.

U.S.C. § 112, first paragraph, as unsupported by an enabling disclosure.<sup>2</sup> We affirm.

## I. BACKGROUND

### A. *The Invention*

The claims on appeal are directed to processes for producing live, non-pathogenic vaccines against pathogenic RNA viruses (claims 1-10, 22-37, 40, 45, and 46), vaccines produced by these processes (claims 11, 12, 15-21, 38, and 39), and methods of using certain of these claimed vaccines to protect living organisms against RNA viruses (claims 41 and 42). Wright's specification provides a general description of these processes, vaccines, and methods of use, but only a single working example.

In this example, Wright describes the production of a recombinant vaccine which confers immunity in chickens against the RNA tumor virus known as Prague Avian Sarcoma Virus (PrASV), a member of the Rous Associated virus (RAV) family. To produce this vaccine, Wright first identified the antigenic gene region of the genome of PrASV as being in the envelope A (*env A*) gene region of this virus, and then isolated and cloned a large quantity of this antigenic gene region. Following cloning, Wright introduced by transfection the cloned *env A* genes into C/O cells, a particular chicken embryo cell line. The C/O cells were then infected with the endogenous, non-oncogenic, O-type Rous Associated Virus (RAV-O) and incubated. Genetic recombination and viral replication occurred during incubation, resulting in an im-

pure vaccine containing particles of the recombinant virus referred to as RAV-O Ac<sup>n</sup>, or RAV-O-A.<sup>3</sup> Wright then purified this vaccine to obtain a vaccine containing only genetic recombinant RAV-Ac<sup>n</sup> virus particles. The Examiner ultimately allowed claims 13, 14, 43, and 44, which are specific to the particular process and vaccine disclosed in this example.<sup>4</sup>

Wright seeks allowance, however, of claims which would provide, in varying degrees, a much broader scope of protection than the allowed claims. For example, independent process claim 1 reads:

A process for producing a live non-pathogenic vaccine for a pathogenic RNA virus, comprising the steps of identifying the antigenic and pathogenic gene regions of said virus; performing gene alteration to produce a genome which codes for the antigenicity of the virus, but does not have its pathogenicity; and obtaining an expression of the gene.

Dependent claims 2-10, 22-35, and 40 recite additional limitations to this process. Independent claims 36 and 45 and claims 37 and 46 dependent therefrom, respectively, are also directed to processes for producing vaccines.

Independent product claim 11 reads:

A live, non-pathogenic vaccine for a pathogenic RNA virus, comprising an immunologically effective amount of a viral antigenic, genomic expression having an anti-

2. In an April 12, 1992 reconsideration decision, the Board denied Wright's request that it modify its original decision.

3. Transfection, infection, genetic recombination, and viral replication collectively constitute a procedure known as marker rescue.

4. The allowed claims read:

*Claim 13.* A live, non-pathogenic vaccine for a pathogenic RNA virus, comprising an immunologically effective amount of a viral, antigenic, genomic expression having an antigenic determinant region of the RNA virus, but no pathogenic properties, the viral, antigenic, genomic expression being the RAV-Ac<sup>n</sup> virus.

*Claim 14.* A vaccine according to claim 13, wherein the vaccine has been purified by selection for the expression of the antigenic genome.

*Claim 43.* A process for producing a live, non-pathogenic, recombinant vaccine conferring immunity against the PrASV avian tumor virus in chickens, comprising inserting the PrASV *env A* gene into a RAV-O virus by marker rescue such that said PrASV *env A* gene replaces the endogenous envelope gene of the RAV-O virus; and selecting for the recombinant in C/E cells.

*Claim 44.* A live, non-pathogenic, recombinant vaccine conferring immunity against the PrASV avian tumor virus in chickens, in which vaccine the PrASV *env A* gene has been inserted into a RAV-O virus by marker rescue to replace the endogenous envelope gene of the RAV-O virus, and the recombinant has been selected for in C/E cells.

gene determinant region of the RNA virus, but no pathogenic properties.

Dependent claims 15-21 recite additional limitations to this vaccine. Independent claims 38 and 47 and claims 39 and 48 dependent therefrom, respectively, are also directed to vaccines.

Dependent claims 41 and 42 recite methods of protecting living organisms against RNA viruses, which comprise introducing into a host an immunologically effective amount of the vaccine of claims 11 and 38, respectively.

#### B. The Rejection

The Examiner took the position in her Examiner's Answer that the claims presently on appeal are not supported by an enabling disclosure because one of ordinary skill in the art would have had to engage in undue experimentation in February of 1983 (the effective filing date of Wright's application) to practice the subject matter of these claims, given their breadth, the unpredictability in the art, and the limited guidance Wright provides in his application. The Examiner noted that many of Wright's claims read on vaccines against *all* pathogenic RNA viruses, even though RNA viruses are a very diverse and genetically complex group of viruses which include, among others, acquired immunodeficiency syndrome (AIDS) viruses, leukemia viruses, and sarcoma viruses. The Examiner argued that Wright's single working example merely evidenced that Wright had obtained successfully a particular recombinant virus vaccine, and that this single success did not provide "sufficient likelihood" that other recombinant RNA viruses could be constructed without undue experimentation, or if they were constructed, that they would be useful in the design of live viral vaccines. The Examiner noted the inability of the scientific community to develop an efficacious AIDS virus vaccine for humans despite devoting a considerable amount of time and money to do so.

The Examiner further argued that, even though retroviruses as a class may exhibit similar gene order and possess envelope proteins, this alone does not support a general conclusion that all RNA virus envelope pro-

teins will confer protection against the corresponding virus. The Examiner asserted that this held true even among avian RNA tumor viruses. At page 11 of her Answer, the Examiner stated that "one envelope gene's immunogenicity cannot be extrapolated to another envelope gene. The efficacy of each should be ascertained individually."

To support the foregoing, the Examiner relied upon an article by Thomas J. Matthews et al., *Prospects for Development of a Vaccine Against HIV*, in *Human Retroviruses, Cancer, and AIDS: Approaches to Prevention and Therapy* 313-25 (1988). This article indicates that AIDS retroviruses, which represent only a subset of all RNA viruses, were known even as late as 1988 to show great genetic diversity, including divergent virus envelopes. It further indicates that, although AIDS retroviruses elicited strong immune responses in goats and chimps in 1988, the resulting antibodies did not prevent retrovirus infectivity. Moreover, this article also recognizes at page 321 that, as of 1988, animal models for HIV infection and disease were likely to be imperfect, and therefore testing of primary vaccine candidates in man was necessary to determine safety, immunogenicity and efficacy.

Finally, the Examiner also argued that, irrespective of immunogenicity and vaccine considerations, the methods of identification, isolation, cloning, and recombination which Wright describes in his application in only a very general manner were not so developed in 1983 as to enable, without undue experimentation, the design and production of recombinant virus vaccines against any and all RNA viruses. The Examiner also asserted that the considerable amount of time and effort that it took Wright to construct the particular avian recombinant virus described in his single working example and to establish its efficacy as a vaccinating agent illustrates the amount of undue experimentation that would have been required in February of 1983 to practice Wright's invention, especially given that the efficacy of the developed virus could not be extrapolated with any certainty to other recombinant viruses at that time.



### C. The Board Decision

In its January 16, 1992 decision,<sup>5</sup> the Board held that the Examiner did not err in questioning the enablement of the physiological activity required by the appealed claims, given the breadth of these claims and the fact that a vaccine must by definition provoke an immunoprotective response upon administration. The Board found that Wright had failed to establish that the general description of his invention set forth in his application was anything more, in February of 1983, than an invitation to experiment. The Board agreed with the Examiner that this general description does not set forth such sufficient detailed guidance that one of ordinary skill in the art would have had any reasonable expectation of success in constructing other vaccines against other RNA viruses. The Board additionally noted that the Examiner only allowed the claims limited to Wright's single working example after Wright submitted *in vivo* evidence of the efficacy of this vaccine.

The Board further held that the record did not support Wright's arguments that his single working example enables some of his dependent claims which are closer in scope to the allowed claims than to independent claims 1 and 11. The Board found that, even if Wright was correct in stating that it was generally known that an "immune response" is assured by use of an antigenic envelope protein, the record did not establish that such an "immune response" would have been an immunoprotective one, or moreover, that one skilled in this art would have expected such a result in February of 1983. The Board relied upon the Matthews et al. article as evidencing that "the mere use of an envelope protein gene in the present invention is not seen to necessarily result in the obtention of successful vaccines throughout the scope of even these more limited claims." Bd.Dec. at 6.

As to Wright's request that the Board consider several declarations and exhibits of record, the Board stated that it found no reason to consider this evidence with any

particularity since Wright had failed to advance any specific arguments based on this evidence or to explain its relevance.

## II. DISCUSSION

### A.

[1,2] The first paragraph of 35 U.S.C. § 112 requires that the specification of a patent contain a written description of the claimed invention and the manner and process of making and using that invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which that invention pertains, or with which it is most nearly connected, to make and use that invention. As a statutory requirement, enablement is a question of law that we review *de novo*; however, we review for clear error any underlying facts found by the Board in rendering its enablement determination. *In re Vaeck*, 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed.Cir.1991); *In re Wands*, 858 F.2d 731, 735, 8 USPQ2d 1400, 1404 (Fed. Cir.1988).

[3] Although not explicitly stated in section 112, to be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without "undue experimentation." *Vaeck*, 947 F.2d at 495, 20 USPQ2d at 1444; *Wands*, 858 F.2d at 736-37, 8 USPQ2d at 1404; *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970) (the first paragraph of section 112 requires that the scope of protection sought in a claim bear a reasonable correlation to the scope of enablement provided by the specification). Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided through broad terminology or illustrative examples. *In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971).

[4] When rejecting a claim under the enablement requirement of section 112, the PTO bears an initial burden of setting forth a reasonable explanation as to why it believes

Answer and that the Board's added comments were for emphasis only.

5. The Board stated in its opinion that it was affirming the Examiner's rejection under section 112 for the reasons set forth in the Examiner's

that the scope of protection provided by that claim is not adequately enabled by the description of the invention provided in the specification of the application; this includes, of course, providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement. If the PTO meets this burden, the burden then shifts to the applicant to provide suitable proofs indicating that the specification is indeed enabling. *Marzocchi*, 439 F.2d at 223-24, 169 USPQ at 369-70.

### B.

[5] In the present case, the PTO set forth a reasonable basis for finding that the scope of the appealed claims is not enabled by the general description and the single working example in the specification. Consequently, the burden shifted to Wright to present persuasive arguments, supported by suitable proofs where necessary, that the appealed claims are truly enabled. Wright failed to meet this burden.

Both the Examiner and the Board correctly pointed out that Wright's appealed claims are directed to vaccines, and methods of making and using these vaccines, which must by definition trigger an immunoprotective response in the host vaccinated; mere antigenic response is not enough.<sup>6</sup> Both also correctly pointed out that Wright attempts to claim in many of the appealed claims *any and all* live, non-pathogenic vaccines, and processes for making such vaccines, which elicit immunoprotective activity in *any* animal toward *any* RNA virus. In addition, both properly stressed that many of the appealed claims encompass vaccines against AIDS viruses and that, because of the high degree of genetic, antigenic variations in

such viruses, no one has yet, years after his invention, developed a generally successful AIDS virus vaccine.

The Matthews et al. article, published approximately 5 years after the effective filing date of Wright's application, adequately supports the Examiner's and the Board's position that, in February of 1983, the physiological activity of RNA viruses was sufficiently unpredictable that Wright's success in developing his specific avian recombinant virus vaccine would not have led one of ordinary skill in the art to believe reasonably that all living organisms could be immunized against infection by any pathogenic RNA virus by inoculating them with a live virus containing the antigenic code but not the pathogenic code of that RNA virus. The general description and the single example in Wright's specification, directed to a uniquely tailored *in vitro* method of producing in chicken C/O cells a vaccine against the PrASV avian tumor virus containing live RAV-Ac<sup>n</sup> virus particles, did nothing more in February of 1983 than invite experimentation to determine whether other vaccines having *in vivo* immunoprotective activity could be constructed for other RNA viruses.

[6] Wright argues that he has constructed successfully an *env* C recombinant vaccine according to the present invention and that certain recombinant AIDS virus vaccines carrying SIV (simian immunodeficiency virus) and HIV (human immunodeficiency virus) envelope genes have been produced which confer protective immunity in the animal models where they have been tested,<sup>7</sup> and that these developments illustrate that the art is not so unpredictable as to require undue experimentation. However, all of these developments occurred after the effective

6. Wright defines "vaccine" at page 1 of his specification as being a "material which induces an organism to acquire immunity against disease." Furthermore, as noted by the Board, the *Dictionary of Biochemistry* 330 (John Wiley & Sons 1975), defines "vaccine" as a suspension of antigens derived from viruses or bacteria that, upon administration, will produce active immunity and provide protection against those viruses or bacteria or related viruses or bacteria.

7. See Shio-Luk Hu et al., *Protection of Macaques Against SIV Infection by Subunit Vaccines of SIV*

*Envelope Glycoprotein gp160*, 255 *Science* 456-59 (1992); Shio-Luk Hu et al., *Neutralizing Antibodies Against HIV-1 BRU and SF2 Isolates Generated in Mice Immunized with Recombinant Vaccinia Virus Expressing HIV-1 (BRU) Envelope Glycoproteins and Boosted with Homologous gp160*, 7 *AIDS RESEARCH AND HUMAN RETROVIRUSES* 616-20 (1991); Phillip W. Berman et al., *Protection of Chimpanzees from Infection by HIV-1 after Vaccination with Recombinant Glycoprotein gp120 but not gp160*, 345 *Nature* 622-625 (1990).

tive filing date of Wright's application and are of no significance regarding what one skilled in the art believed as of that date.<sup>8</sup> Furthermore, the fact that a few vaccines have been developed since the filing of Wright's application certainly does not by itself rebut the PTO's assertions regarding undue experimentation. Moreover, whether a few AIDS virus vaccines have been developed which confer immunity in some animal models is not the issue. The Examiner made reference to the difficulty that the scientific community is having in developing generally successful AIDS virus vaccines merely to illustrate that the art is not even today as predictable as Wright has suggested that it was back in 1983.

[7] Wright also argues that several affidavits of record, namely, an October 22, 1984 declaration by Wright, an October 23, 1984 affidavit by O'Neill, and October 28, 1988 affidavits by Bennett and Burnett, successfully rebut the Board's and the Examiner's assertions regarding undue experimentation. However, Wright did not set forth in his brief to the Board any specific arguments regarding these affidavits, as required by 37 CFR 1.192(a), and therefore we are not required to address the arguments that Wright presents in this appeal regarding these affidavits. *Chester v. Miller*, 906 F.2d 1574, 1578 n. 6, 15 USPQ2d 1333, 1337 n. 6 (Fed. Cir.1990); *In re Wiseman*, 596 F.2d 1019, 1022, 201 USPQ 658, 661 (CCPA 1979).

8. In his appeal to this court, Wright all too frequently slips into using the present tense to discuss the state of the art and what a skilled artisan would believe given Wright's success with one avian virus. We note, however, that the issue is not what the state of the art is today or what a skilled artisan today would believe, but rather what the state of the art was in February of 1983 and what a skilled artisan would have believed at that time. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed.Cir.), cert. denied, 480 U.S. 947, 107 S.Ct. 1606, 94 L.Ed.2d 792 (1987); *In re Hogan*, 559 F.2d 595, 604, 194 USPQ 527, 535 (CCPA 1977). Wright's tendency to employ the present tense often makes it difficult to determine whether Wright is asserting that certain information was known prior to February of 1983 or simply that that information is now known in the art.

9. For example, O'Neill stated in his affidavit that the specification provided him "with sufficient

[8] Nevertheless, we note that each of these affidavits fails in its purpose because each merely contains unsupported conclusory statements as to the ultimate legal question.<sup>9</sup> See *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed.Cir.1991); *In re Brandstadter*, 484 F.2d 1395, 1405-06, 179 USPQ 286, 293-94 (CCPA 1973). Furthermore, Burnett and Bennett do not even indicate in their affidavits that they actually reviewed the specification of Wright's application. In addition, although Wright states in his declaration that the individual steps making up his claimed process were "well within the skill of the art" at the time that he filed his application and makes reference to a list of publications that he contends supports this conclusory statement, a list which Wright also makes reference to in his arguments to this court, Wright fails to point out with any particularity in this declaration, or in his arguments to this court, how the listed documents evidence that a skilled artisan in February of 1983 would have been able to carry out, without undue experimentation, the identification, isolation, cloning, recombination, and efficacy testing steps required to practice the full scope of the appealed claims.

## C.

Wright further argues that, even if those claims which provide a broad scope of protection are not enabled, this is not the case as to those claims restricted to vaccines against

information to produce a vaccine for any known pathogen in accordance with the procedural steps claimed" and that he could not "foresee any problem in producing similar vaccines for other pathogens." Bennett and Burnett merely declared in their affidavits that, at the time they worked with Wright, they believed that the specific vaccine that they were developing was simply one example within a broader concept. In his October 22, 1984 declaration, Wright stated that he knew "of no reason why the specific vaccine tested is not truly indicative of successful application of other embodiments of the invention within the purview of the teachings and claims of my patent application." Wright further stated that "[although the project has been primarily directed toward the production and testing of a specific vaccine for a specific virus, the concept has been inherently generic as claimed."

avian tumor viruses. Wright maintains that there is no doubt that it was known in 1983 that the technique of producing a live vaccine proven effective for one particular strain of avian RNA viruses would be effective as to other strains of avian RNA viruses. Wright argues that the scientific literature supports the position that the art was predictable at least with respect to avian RNA viruses, because gene function and order are similar among all avian RNA viruses.

We are not persuaded. Wright has failed to establish by evidence or arguments that, in February of 1983, a skilled scientist would have believed reasonably that Wright's success with a particular strain of an avian RNA virus could be extrapolated with a reasonable expectation of success to other avian RNA viruses. Indeed, Wright has failed to point out with any particularity the scientific literature existing in February of 1983 that supports his position. Furthermore, Wright's May 17, 1989 declaration indicates that Wright himself believed during the relevant time period that *in vivo* testing was necessary to determine the efficacy of vaccines. In this declaration, Wright stated in pertinent part:

Preparation of a patent application following conception of the invention awaited such time as there was a reasonable expectation that the results of inoculation [sic] would be successful. *This became apparent only by reason of survival of the chickens that had been inoculated* [sic].

Wright now argues that all he meant by the foregoing was that *in vivo* efficacy testing was necessary for the first avian RNA virus vaccine that he developed in order to prove his hypothesis. Wright asserts that, once his hypothesis had been proven, a skilled artisan would have expected that similar *in vivo* results could be obtained for vaccines developed for other avian retroviruses. However, a paper that Wright co-authored with David Bennett, titled "Avian Retroviral Recombinant Expressing Foreign Envelope Delays Tumor Formation of ASV-A-Induced Sarcoma," which was attached to

a declaration by Wright dated November 19, 1985, suggests that, even as late as 1985, the genetic diversity existing among chickens alone required efficacy testing even among the members of this narrow group.<sup>10</sup> Accordingly, we see no error in the Board's finding that one skilled in the art would not have believed as early as February of 1983 that the success of Wright's one example could be extrapolated with a reasonable expectation of success to all avian RNA viruses.

#### D.

Finally, Wright argues that each of the appealed claims should be considered independently to determine whether it satisfies the enablement requirement of section 112. This we have done. Wright's arguments to this court, however, are directed almost entirely to why he believes that the specification of his application enables the appealed claims as a whole or at least those claims limited to avian RNA viruses. Although Wright does refer in passing to each of the appealed claims, he does little more than recite the particular limitations recited in these claims, failing to point out how the enablement requirement is satisfied as to each of these claims independently. Consequently, Wright has failed to provide us with any justification for finding that the Board erred in sustaining the Examiner's rejection, even with respect to some of the more limited claims.

#### CONCLUSION

For the foregoing reasons, the decision of the Board is affirmed.

**AFFIRMED.**



<sup>10</sup> The paper states in pertinent part: "Recent observations suggest line SC chickens do not respond well immunologically.... Follow up

experiments will include other chicken lines. Mechanisms of protection are also under study."



## V. Analysis

[4] Having carefully reviewed the record and the briefs, we see no merit to the first two issues raised by Johns in this appeal and, accordingly, summarily affirm the district court as to those issues. The sentencing issue, however, involves a question of first impression in this circuit. Accordingly, we address that issue in some detail.

Johns contended at his sentencing that U.S.S.G. § 4B1.4 violates the due process and equal protection clauses of the Fourteenth Amendment to the United States Constitution because it takes into account a defendant's criminal record in calculating both his criminal history and his offense level. For that reason, Johns objected to the district court sentencing him under that provision. The district court overruled Johns' objection and sentenced him pursuant to § 4B1.4.

Although this case presents an issue of first impression in this circuit, arguments that the armed career criminal sentencing scheme is unconstitutional on the basis of due process and equal protection violations have been flatly rejected by all courts of appeal which have considered the issue. See, e.g., *United States v. John*, 936 F.2d 764, 766 n. 2 (3d Cir.1991) (due process); *United States v. Hayden*, 898 F.2d 966, 967 (5th Cir.1990) (equal protection); *United States v. Baker*, 850 F.2d 1365, 1372 (9th Cir.1988) (equal protection); *United States v. Clawson*, 831 F.2d 909, 915 (9th Cir. 1987), cert. denied, 488 U.S. 923, 109 S.Ct. 303, 102 L.Ed.2d 323 (1988) (equal protection); see also *United States v. Green*, 902 F.2d 1311, 1313 (8th Cir.1990) (due process); *United States v. Pinto*, 875 F.2d 143, 144 (7th Cir.1989) (due process). Additionally, we have held generally that the Sentencing Guidelines are constitutional and do not violate due process. See *United States v. Willis*, 956 F.2d 248, 250 (11th Cir.1992).

Moreover, Congress directed the Sentencing Commission to "assure that [for career offenders] the guidelines specify a sentence to a term of imprisonment at or near the maximum term authorized." See 28 U.S.C.A. § 994(h) (West Supp.1992).

The career offender scheme of using a defendant's criminal record in considering both his offense level and his criminal history under the Sentencing Guidelines bears a rational relationship to a legitimate governmental purpose—"to prevent repeat offenders from continuing to victimize society." *John*, 936 F.2d at 766-67 n. 2. Consequently, Johns' due process claim lacks merit. *Id.*; see also *United States v. Erves*, 880 F.2d 376, 379 (11th Cir.1989) (rejecting both procedural and substantive due process attacks on sentencing guidelines); *United States v. Hawkins*, 811 F.2d 210, 217 (3d Cir.), cert. denied, 484 U.S. 833, 108 S.Ct. 110, 98 L.Ed.2d 69 (1987) (holding sentencing enhancement scheme in armed career criminal amendment to 18 U.S.C.A. § 1202(a) constitutional). Defendant's equal protection claim is equally lacking in merit. See *Clawson*, 831 F.2d at 915; *Baker*, 850 F.2d at 1372. Accordingly, we hold Johns' sentence pursuant to U.S.S.G. § 4B1.4 does not violate due process or equal protection.

For the foregoing reasons, we affirm Johns' convictions and sentences.

AFFIRMED.



Walter C. FIERS, Appellant,

v.

Michel REVEL and Pierre Tiollais, Appellants,

v.

Haruo SUGANO, Masami Muramatsu and Tadatsugu Taniguchi, Appellees.

Nos. 92-1170, 92-1171.

United States Court of Appeals,  
Federal Circuit.

Jan. 19, 1993.

In three-way interference proceeding.  
No. 101,096, involving three foreign inven-

tors who file  
tions for DNA  
beta-interferon  
Office Board  
ferences award  
relied on Jap.  
ed inventors  
peals, Lourie,  
for priority  
DNA did not  
method for o  
of the DNA  
utility; (2) ea  
did not conta  
tion of the D  
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tors who filed United States patent applications for DNA coding for human fibroblast beta-interferon, the Patent and Trademark Office Board of Patent Appeals and Interferences awarded priority to inventor who relied on Japanese filing date. Disappointed inventors appealed. The Court of Appeals, Lourie, Circuit Judge, held that: (1) for priority purposes, conception of the DNA did not occur upon conception of method for obtaining it without definition of the DNA other than by its functional utility; (2) earlier-filed foreign application did not contain sufficient written description of the DNA even if claim in application corresponded to language of count; and (3) prevailing applicant was entitled to rely on his earlier filed foreign patent application which set forth detailed teaching of method for obtaining the DNA and complete and correct nucleotide sequence.

Affirmed.

#### 1. Patents $\Rightarrow$ 324.55(1)

Date on which DNA sequence coding for specific protein was conceived for priority of invention purposes is question of law that Court of Appeals reviews de novo. 35 U.S.C.A. § 102(g).

#### 2. Patents $\Rightarrow$ 65

Irrespective of complexity or simplicity of method of isolation employed, conception of DNA sequence coding for specific protein, like conception of any chemical substance, requires definition of that substance other than by its functional utility. 35 U.S.C.A. § 102(g).

#### 3. Patents $\Rightarrow$ 90(5)

Before reduction to practice, conception only of process for making chemical substance, without conception of structural or equivalent definition of that substance, can at most constitute conception of substance claimed as process, and will not suffice to establish priority of invention. 35 U.S.C.A. § 102(g).

#### 4. Patents $\Rightarrow$ 90(1)

Conception of substance claimed per se without reference to process requires conception of its structure, name, formula, or

definitive chemical or physical properties for purposes of establishing priority of invention. 35 U.S.C.A. § 102(g).

#### 5. Patents $\Rightarrow$ 90(1)

Policy behind statute setting out conditions for patentability of inventions is to promote disclosure of inventions, not of research plans; to hold that, for priority of invention purposes, conception occurs when one has only idea of chemical compound, defining it by its hoped-for function, would be inconsistent with this policy. 35 U.S.C.A. § 102(g).

#### 6. Patents $\Rightarrow$ 90(1)

Conception of DNA sequence coding for particular protein did not occur upon conception of method for obtaining it, even if method could have easily been carried out by one of ordinary skill in art; controlling issue was whether applicant conceived of DNA coding for specific protein, not whether his method was enabling. 35 U.S.C.A. § 102(g).

#### 7. Patents $\Rightarrow$ 66(1.3)

To be entitled to benefit of earlier-filed foreign patent application for DNA coding for specific protein, applicant had burden of showing that foreign application contained written description of DNA of the count and that it was enabling. 35 U.S.C.A. § 112.

#### 8. Patents $\Rightarrow$ 324.55(2)

Compliance with written description requirement for earlier-filed foreign patent application is question of fact which Court of Appeals reviews for clear error. 35 U.S.C.A. § 112.

#### 9. Patents $\Rightarrow$ 66(1.3)

Earlier-filed foreign patent application which merely disclosed clone that might be used to obtain mRNA coding for human fibroblast beta-interferon did not contain adequate written description of DNA coding for beta-interferon; application did not demonstrate that disclosed method actually led to DNA, and so did not disclose that applicant had possession of invention.

## 10. Patents ⇐65

Written description in patent application for DNA coding for specific protein requires precise definition of DNA, such as by structure, formula, chemical name, or physical properties; written description of DNA requires same degree of specificity as conception of DNA, and bare reference to DNA with reference to potential method for isolating it will not suffice. 35 U.S.C.A. § 112.

## 11. Patents ⇐66(1.3)

Earlier-filed foreign patent application did not contain adequate written description of DNA coding for human fibroblast beta-interferon, even if claim in application corresponded substantially to language of count. 35 U.S.C.A. § 112.

## 12. Patents ⇐324.55(1)

Whether method disclosed in patent application is sufficient to enable person skilled in art to make and use claimed invention is question of law which Court of Appeals reviews de novo. 35 U.S.C.A. § 112.

## 13. Patents ⇐101(9)

Applicant was entitled to rely on his disclosure as enabling, without producing extrinsic evidence showing enablement, since disclosure set forth detailed teaching of method for obtaining DNA coding for human fibroblast beta-interferon. 35 U.S.C.A. § 112.

## 14. Patents ⇐97

Since specification disclosure of foreign patent application contained teaching of the manner and process of making and using invention in terms corresponding in scope to those used in describing and defining subject matter sought to be patented, burden shifted to party contending that applicant was not entitled to earlier filing date of foreign application to prove that application was not enabling. 35 U.S.C.A. § 112.

## 15. Patents ⇐90(1)

Applicant for patent for DNA coding for human fibroblast beta-interferon was

1. DNA is deoxyribonucleic acid, a generic term encompassing the many chemical materials that

entitled to benefit of earlier filing date of his foreign patent application in which he set forth detailed teaching of method for obtaining DNA and set forth complete and correct nucleotide sequence of DNA coding for beta-interferon, and thus conveyed with reasonable clarity to those skilled in the art that, as of filing date of foreign application, applicant was in possession of the DNA coding.

David J. Lee, Fish & Neave, New York City, argued for appellant. With him on the brief were James F. Haley, Jr. and Ivor R. Elrifi. Roger L. Browdy, Browdy & Neimark, Washington, DC, argued for appellants.

Nels T. Lippert, White & Case, New York City, argued for appellees.

Before MICHEL, Circuit Judge, COWEN, Senior Circuit Judge, and LOURIE, Circuit Judge.

LOURIE, Circuit Judge.

Walter C. Fiers, Michel Revel, and Pierre Tiollais appeal from the June 5, 1991 decision of the Patent and Trademark Office Board of Patent Appeals and Interferences, awarding priority of invention in a three-way interference proceeding, No. 101,096, to Haruo Sugano, Masami Muramatsu, and Tadatsugu Taniguchi (Sugano). We affirm.

## BACKGROUND

This interference among three foreign inventive entities relates to the DNA<sup>1</sup> which codes for human fibroblast beta-interferon ( $\beta$ -IF), a protein that promotes viral resistance in human tissue. It involves a single count which reads:

A DNA which consists essentially of a DNA which codes for a human fibroblast interferon-beta polypeptide.

genetically control the structure and metabolism of living things.

The parties follows: Sugano on April 3, 1980 (Revel) on S claimed the Japanese filing date, and Fiers under 35 U.S.C.A. § 112, conception of British filing

Sugano's complete coding for  $\beta$ -IF that DNA.<sup>4</sup> closed a method for the DNA coding method for (mRNA) coding close a complete  $\beta$ -IF.<sup>5</sup> Fiers based his case on conception of January 1980, into the United States

2. Revel assigned search and D interest in the dated to be interest in the dated to be Foundation for

3. 35 U.S.C.A. § 101. A person skilled in the art

(g) before the invention another who or concealed invention the the respective tion to practice reasonable conceive and time prior to

4. Sugano's method two populations probes prepared cells. One from the mRNA the other produced cells to a cDNA library and the cloned first probe were then used length DNA sequences then sequenced

The parties filed U.S. patent applications as follows: Sugano on October 27, 1980, Fiers on April 3, 1981, and Revel and Tiollais (Revel) on September 28, 1982.<sup>2</sup> Sugano claimed the benefit of his March 19, 1980 Japanese filing date. Revel claimed the benefit of his November 21, 1979 Israeli filing date, and Fiers sought to establish priority under 35 U.S.C. § 102(g) based on prior conception coupled with diligence up to his British filing date on April 3, 1980.<sup>3</sup>

Sugano's Japanese application disclosed the complete nucleotide sequence of a DNA coding for  $\beta$ -IF and a method for isolating that DNA.<sup>4</sup> Revel's Israeli application disclosed a method for isolating a fragment of the DNA coding for  $\beta$ -IF as well as a method for isolating messenger RNA (mRNA) coding for  $\beta$ -IF, but did not disclose a complete DNA sequence coding for  $\beta$ -IF.<sup>5</sup> Fiers, who was working abroad, based his case for priority on an alleged conception either in September 1979 or in January 1980, when his ideas were brought into the United States, coupled with dili-

gence toward a constructive reduction to practice on April 3, 1980, when he filed a British application disclosing the complete nucleotide sequence of a DNA coding for  $\beta$ -IF. According to Fiers, his conception of the DNA of the count occurred when two American scientists, Walter Gilbert and Phillip Sharp, to whom he revealed outside of the United States a proposed method for isolating DNA coding for  $\beta$ -IF brought the protocol back to the United States.<sup>6</sup> Fiers submitted affidavits from Gilbert and Sharp averring that, based on Fiers' proposed protocol, one of ordinary skill in the art would have been able to isolate  $\beta$ -IF DNA without undue experimentation.<sup>7</sup> On February 26, 1980, Fiers' patent attorney brought into the United States a draft patent application disclosing Fiers' method, but not the nucleotide sequence for the DNA.

The Board awarded priority of invention to Sugano, concluding that (1) Sugano was entitled to the benefit of his March 19, 1980

2. Revel assigned his application to Yeda Research and Dev. Co. Ltd. The real party in interest in the Fiers application has been indicated to be Biogen, Inc. The real party in interest in the Sugano application has been indicated to be Juridical Foundation, Japanese Foundation for Cancer Research.

3. 35 U.S.C. § 102 provides in pertinent part: A person shall be entitled to a patent unless

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

4. Sugano's method involved the preparation of two populations of radioactivity-labelled cDNA probes prepared from the mRNA of fibroblast cells. One population of probes was prepared from the mRNA of induced fibroblast cells and the other population from the mRNA of non-induced cells. These probes were then exposed to a cDNA library prepared from induced cells, and the clones that only hybridized with the first probe were selected. The selected clones were then used as probes to select the full-length DNA sequence encoding  $\beta$ -IF, which was then sequenced.

5. Revel's method involved preparing a cDNA library of clones from the mRNA of cells induced to produce  $\beta$ -IF, screening each clone for hybridization to mRNA from induced cells, eluting the hybridized mRNA, and assaying the eluted mRNAs for  $\beta$ -IF activity.

6. Fiers presented his protocols and progress to date toward isolating DNA coding for  $\beta$ -IF at a September 21, 1979 meeting in Paris at which Sharp and Gilbert were present. Sharp and Gilbert returned to the United States on September 23 and 24, respectively. Fiers made a second presentation in Martinique on January 12, 1980. Gilbert and Sharp were both present and returned to the United States on January 15 and 17, respectively. On March 25, 1980, Fiers disclosed by telephone to his patent attorney that he had determined the entire nucleotide sequence of a DNA coding for  $\beta$ -IF. Fiers presented that nucleotide sequence along with a protocol for preparing the complete DNA in Switzerland on March 28, 1980. Fiers and his attorney worked from March 31 until April 2 in Ghent drafting the final portion and claims of the British application that Fiers filed on April 3, 1980.

7. Fiers' proposed protocol involved preparing a cDNA library from the mRNA of cells induced to produce  $\beta$ -IF mRNA, and screening the cDNA library for a cDNA that, when introduced into a cell, would cause it to display  $\beta$ -IF activity.



Japanese filing date.<sup>8</sup> (2) Fiers was entitled to the benefit of his April 3, 1980 British filing date, but did not prove conception of the DNA of the count prior to that date, and (3) Revel was not entitled to the benefit of his November 21, 1979 Israeli filing date. The Board based its conclusions on the disclosure or failure to disclose the complete nucleotide sequence of a DNA coding for  $\beta$ -IF.

### DISCUSSION

#### *Fiers' Case for Priority*

The Board held that Fiers failed to establish conception in the United States prior to his April 3, 1980 British filing date. Specifically, the Board determined that Fiers' disclosure of a method for isolating the DNA of the count, along with expert testimony that his method would have enabled one of ordinary skill in the art to produce that DNA, did not establish conception, since "success was not assured or certain until the [ $\beta$ -IF] gene was in fact isolated and its sequence known." The Board relied on our opinion in *Amgen Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed.Cir.1991), in which we addressed the requirements necessary to establish conception of a purified DNA sequence coding for a specific protein. Accordingly, the Board held that Fiers was entitled only to the benefit of his April 3, 1980 British application date because only that application disclosed the complete nucleotide sequence of the DNA coding for  $\beta$ -IF. That date was subsequent to Sugano's March 1980 Japanese priority date.

Fiers argues that the Board erroneously determined that *Amgen* controls this case. According to Fiers, the Board incorrectly interpreted *Amgen* as establishing a rule that a DNA coding for a protein cannot be conceived until one knows the nucleotide sequence of that DNA. Fiers argues that

this court decided *Amgen* on its particular facts and that this case is distinguishable. Fiers' position is that we intended to limit *Amgen* to cases in which isolation of a DNA was attended by serious difficulties such as those confronting the scientists searching for the DNA coding for erythropoietin (EPO), e.g., screening a genomic DNA library with fully degenerate probes. According to Fiers, his method could have been easily carried out by one of ordinary skill in the art.<sup>9</sup> Fiers also argues that *Amgen* held that a conception of a DNA can occur if one defines it by its method of preparation. Fiers suggests that the standard for proving conception of a DNA by its method of preparation is essentially the same as that for proving that the method is enabling. Fiers thus urges us to conclude that since his method was enabling for the DNA of the count, he conceived it in the United States when Gilbert and Sharp entered the country with the knowledge of, and detailed notes concerning, Fiers' process for obtaining it.

[1,2] Conception is a question of law that we review *de novo*. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81, 87 (Fed.Cir.1986) (citing *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831, 837, 221 USPQ 561, 565 (Fed.Cir.1984)). Although *Amgen* was the first case in which we discussed conception of a DNA sequence coding for a specific protein, we were not writing on a clean slate. We stated:

Conception does not occur unless one has a mental picture of the structure of the chemical, or is able to define it by its method of preparation, its physical or chemical properties, or whatever characteristics sufficiently distinguish it. It is not sufficient to define it solely by its

also contends that his screening techniques were routine to those skilled in the art, while those skilled in the art lacked experience screening with fully degenerate probes. Fiers also notes that, in contrast to the situation with EPO in which erroneous amino acid sequence information had been published, the first thirteen amino acids of  $\beta$ -IF were known to the art.

8. Sugano also claimed the benefit of an October 30, 1979 Japanese filing date which the Board denied. Sugano does not challenge that determination on appeal.

9. Fiers' method involved screening a cDNA library which he maintains is smaller and less complex than a genomic DNA library. Fiers

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principal biological property, *e.g.*, encoding human erythropoietin, because an alleged conception having no more specificity than that is simply a wish to know the identity of any material with that biological property. We hold that when an inventor is unable to envision the detailed chemical structure of the gene so as to distinguish it from other materials, as well as a method for obtaining it, conception has not been achieved until reduction to practice has occurred, *i.e.*, until after the gene has been isolated.

927 F.2d at 1206, 18 USPQ2d at 1021. We thus determined that, irrespective of the complexity or simplicity of the method of isolation employed, conception of a DNA, like conception of any chemical substance, requires a definition of that substance other than by its functional utility.

[3, 4] Fiers' attempt to distinguish *Amgen* therefore is incorrect. We also reject Fiers' argument that the existence of a workable method for preparing a DNA establishes conception of that material. Our statement in *Amgen* that conception may occur, *inter alia*, when one is able to define a chemical by its method of preparation requires that the DNA be claimed by its method of preparation. We recognized that, in addition to being claimable by structure or physical properties, a chemical material can be claimed by means of a process. A product-by-process claim normally is an after-the-fact definition, used after one has obtained a material by a particular process. Before reduction to practice, conception only of a process for making a substance, without a conception of a structural or equivalent definition of that substance, can at most constitute a conception of the substance claimed as a process. Conception of a substance claimed *per se* without reference to a process requires conception of its structure, name, formula, or definitive chemical or physical properties.

[5] The present count is to a product, a DNA which codes for  $\beta$ -IF; it is a claim to a product having a particular biological activity or function, and in *Amgen*, we held that such a product is not conceived until

one can define it other than by its biological activity or function. The difficulty that would arise if we were to hold that a conception occurs when one has only the idea of a compound, defining it by its hoped-for function, is that would-be inventors would file patent applications before they had made their inventions and before they could describe them. That is not consistent with the statute or the policy behind the statute, which is to promote disclosure of inventions, not of research plans. While one does not need to have carried out one's invention before filing a patent application, one does need to be able to describe that invention with particularity.

[6] Fiers has devoted a considerable portion of his briefs to arguing that his method was enabling. The issue here, however, is conception of the DNA of the count, not enablement. Enablement concerns teaching one of ordinary skill in the art how to practice the claimed invention. See 35 U.S.C. § 112 (1988); *Amgen*, 927 F.2d at 1212, 18 USPQ2d at 1026. Since Fiers seeks to establish priority under section 102(g), the controlling issue here is whether he conceived a DNA coding for  $\beta$ -IF, not whether his method was enabling.

We conclude that the Board correctly decided that conception of the DNA of the count did not occur upon conception of a method for obtaining it. Fiers is entitled only to the benefit of his April 3, 1980 British filing date, since he did not conceive the DNA of the count under section 102(g) prior to that date.

#### *Revel's Case for Priority*

[7] Revel bears the burden of proving entitlement to the benefit of his earlier-filed Israeli application date. *Utter v. Hiraoka*, 845 F.2d 993, 998, 6 USPQ2d 1709, 1713 (Fed.Cir.1988). To meet this burden, Revel must prove that his application meets the requirements of 35 U.S.C. § 112, first paragraph, *Bigham v. Godfredsen*, 857 F.2d 1415, 1417, 8 USPQ2d 1266, 1268 (Fed.Cir.1988) (citing *Cross v. Iizuka*, 753 F.2d 1040, 1043, 224 USPQ 739, 741 (Fed. Cir.1985)), which provides in pertinent part:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same....

Revel thus must show that the Israeli application contains a written description of the DNA of the count and that it is enabling.

The Board held that Revel's Israeli application did not contain a written description of a DNA coding for  $\beta$ -IF since it did not disclose the nucleotide sequence or "an intact complete gene." The Board, in denying Revel's request for reconsideration, rejected the argument that it is only necessary to show some correspondence between the language in the count and language in the Israeli application to satisfy the written description requirement. The Board stated:

Moreover, what is needed to meet the description requirement will necessarily vary depending on the nature of the invention claimed. The test for sufficiency of support is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." As is apparent from our decision, we found the description in Revel's Israeli application inadequate to reasonably convey to the artisan that Revel was in possession of the invention of beta-interferon DNA [citations omitted].

Relying on *Amgen*, the Board concluded that the Israeli application was not enabling since Revel had not yet conceived the DNA of the count and "[l]ogically, one cannot ... enable an invention that has not been conceived." Slip op. at 13.

Revel argues that the disclosure of his Israeli application satisfies the written description requirement because it contains

language of similar scope and wording to that of the count. Revel cites the following passages from the Israeli application:

The invention thus concerns also said purified m-RNAs which comprises normally up to 900-1000 nucleotides.... In the same manner *it also concerns the corresponding c-DNA which can be obtained by transcription of said RNAs* [emphasis added];

It is a further object of the present invention to provide a process for the isolation of genetic material (DNA) containing the nucleotide sequence coding for interferon in human cells.

Revel points to a claim in the original Israeli application that corresponds substantially to the language of the count.<sup>10</sup> According to Revel, since the language of the count refers to a DNA and not to a specific sequence, the specification need not describe the sequence of the DNA in order to satisfy the written description requirement. Revel thus urges that only similar language in the specification or original claims is necessary to satisfy the written description requirement.

[8] We disagree. Compliance with the written description requirement is a question of fact which we review for clear error. See *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1116 (Fed.Cir.1991); *Utter*, 845 F.2d at 998, 6 USPQ2d at 1714. On reconsideration, the Board correctly set forth the legal standard for sufficiency of description: the specification of Revel's Israeli application must "reasonably convey[] to the artisan that the inventor had possession at that time of the ... claimed subject matter." Slip op. at 3 (citing *Vas-Cath*, 935 F.2d at 1563, 19 USPQ2d at 1117).

[9] An adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself. Revel's specification does

as plasmid PBR-322, and having up to 900-1000 nucleotides.

10. Claim 22 of Revel's original Israeli application reads:

The DNA coding for a polypeptide having interferon activity insertable in a vector, such

not do that. Revel's application does not even demonstrate that the disclosed method actually leads to the DNA, and thus that he had possession of the invention, since it only discloses a clone that might be used to obtain mRNA coding for  $\beta$ -IF.<sup>11</sup> A bare reference to a DNA with a statement that it can be obtained by reverse transcription is not a description; it does not indicate that Revel was in possession of the DNA. Revel's argument that correspondence between the language of the count and language in the specification is sufficient to satisfy the written description requirement is unpersuasive when none of that language particularly describes the DNA.

[10] As we stated in *Amgen* and reaffirmed above, such a disclosure just represents a wish, or arguably a plan, for obtaining the DNA. If a conception of a DNA requires a precise definition, such as by structure, formula, chemical name, or physical properties, as we have held, then a description also requires that degree of specificity. To paraphrase the Board, one cannot describe what one has not conceived.

[11] Because the count at issue purports to cover all DNAs that code for  $\beta$ -IF, it is also analogous to a single means claim, which has been held not to comply with the first paragraph of section 112. See *In re Hyatt*, 708 F.2d 712, 218 USPQ 195, 197 (Fed.Cir.1983) ("the enabling disclosure of the specification [must] be commensurate in scope with the claim under consideration.") Claiming all DNA's that achieve a result without defining what means will do so is not in compliance with the description requirement; it is an attempt to preempt the future before it has arrived.

The Board's determination that the Israeli application does not contain a written description of a DNA coding for  $\beta$ -IF was thus not clearly erroneous. The Board cor-

rectly determined that Revel is not entitled to the benefit of his November 1979 Israeli application since it fails to satisfy the written description requirement of section 112.<sup>12</sup>

#### *Sugano's Case for Priority*

The Board held that Sugano established entitlement to his March 19, 1980 Japanese filing date because the disclosure of his Japanese application contains the complete and correct sequence of the DNA which codes for  $\beta$ -IF, along with a detailed disclosure of the method used by Sugano to obtain that DNA. The Board rejected Fiers' argument that Sugano's March 1980 application is not enabling, since Fiers presented only attorney argument that was "unsupported by competent evidence, entitled to little or no weight and [was] unpersuasive in any event." Slip op. at 12.

Fiers argues that Sugano failed to prove that his application is enabling because he did not produce extrinsic evidence showing enablement. Fiers also argues that the Board erroneously imposed a burden on him to show that Sugano's application is not enabling when, in fact, Fiers had no right to submit rebuttal evidence once Sugano elected to rely solely on his Japanese application.

[12-14] Enablement is a question of law that we review *de novo*. *Amgen*, 927 F.2d at 1212, 18 USPQ2d at 1026. Enablement requires that the application "contain a description that enables one skilled in the art to make and use the claimed invention." *Id.*, (citing *Atlas Powder Co. v. E.I. duPont De Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir.1984)). "[A] specification disclosure which contains a teaching of the manner and process of making and using the invention in terms which correspond in scope to those used in describing and defining the

describe the DNA of the count, we need not reach it either.

11. According to Fiers, Revel's Israeli application also fails the written description requirement because the mRNA disclosed in the application encodes a protein weighing 23,000 daltons which is interleukin-6, not  $\beta$ -IF. The Board did not premise its decision on this point, and, since we determine that Revel's application does not

12. In light of our disposition of the written description requirement question, we do not address whether Revel's Israeli application satisfies the enablement requirement.



subject matter sought to be patented *must* be taken as in compliance with the enabling requirement of the first paragraph of § 112 *unless* there is reason to doubt the objective truth of the statements contained therein which must be relied on for enabling support." *In re Marzocchi*, 439 F.2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). "[A]ny party making the assertion that a U.S. patent specification or claims fails, for one reason or another, to comply with § 112 bears the burden of persuasion in showing said lack of compliance." *Weil v. Fritz*, 601 F.2d 551, 555, 202 USPQ 447, 450 (CCPA 1979). Thus, once the examiner accepted the sufficiency of Sugano's specification, Sugano had no further burden to prove by extrinsic evidence that his application was enabling; the Board correctly determined that it was Fiers (or Revel) who then had to prove that Sugano's application was not enabling. Even if Fiers had no opportunity to cross-examine Sugano because Sugano elected to stand on his filing date, Fiers had other opportunities, including during the motion period, to challenge Sugano's entitlement to his Japanese application filing date. Thus, he did not lack opportunity to challenge.

[15] We conclude that Sugano is entitled to rely on his disclosure as enabling since it sets forth a detailed teaching of a method for obtaining a DNA coding for  $\beta$ -IF and the Board did not err in determining that Fiers presented no convincing evidence impeaching the truth of the statements in Sugano's patent specification. We also conclude that Sugano's application satisfies the written description requirement since it sets forth the complete and correct nucleotide sequence of a DNA coding for  $\beta$ -IF and thus "convey[s] with reasonable clarity to those skilled in the art that, as of the filing date sought, [Sugano] was in possession of the [DNA coding for  $\beta$ -IF]." See *Vas-Cath*, 935 F.2d at 1563, 19 USPQ2d at 1117. The Board correctly determined that Sugano's March 19, 1980 Japanese application satisfies the requirements of section 112, first paragraph, and that Sugano thus met his burden to establish entitlement to that filing date.

## CONCLUSION

The Board correctly awarded priority of invention to Sugano. Accordingly, the decision of the Board is

AFFIRMED.



**BEST POWER TECHNOLOGY SALES CORPORATION, Appellant,**

v.

**Richard G. AUSTIN, Administrator,  
General Services Administration,  
Appellee.**

**BEST POWER TECHNOLOGY SALES CORPORATION, Appellee,**

v.

**Richard G. AUSTIN, Administrator,  
General Services Administration,  
Appellant.**

Nos. 92-1118, 92-1254.

United States Court of Appeals,  
Federal Circuit.

Jan. 21, 1993.

Contractor appealed from final decision of the General Services Administration Board of Contract Appeals (GSBCA) denying contractor's protest of rejection by General Services Administration (GSA) of contractor's offer to enter into contract under GSA's Multiple-Award Schedule (MAS) program to provide uninterruptible power supplies (UPS). The Court of Appeals, Schall, J., held that: (1) when General Services Administration Board of Contract Appeals (GSBCA), in deciding whether it has jurisdiction over bid protest, addresses question of whether given procurement is one for automatic data processing equipment (ADPE), it must look to nature of items called for in solicitation, rather

than to nature of items called for in response to solicitation. Interruption of power is not a "necessary" or "inherent" part of the "ancillary" equipment used in the procurement of ADPE, including "ancillary" equipment.

Reversed.

Nies, C. views.

**1. United States Court of Appeals**

When the Board of Contract Appeals (GSBCA) is deciding whether to grant a bid protest, it must look to nature of items called for in solicitation, rather than to nature of items called for in response to solicitation. Interruption of power is not a "necessary" or "inherent" part of the "ancillary" equipment used in the procurement of ADPE, including "ancillary" equipment. Federal Procurement Act of 1940, 40 U.S.C.A. § 101.

**2. United States Court of Appeals**

When the Board of Contract Appeals (GSBCA) is deciding whether to grant a bid protest, it must look to nature of items called for in solicitation, rather than to nature of items called for in response to solicitation. Interruption of power is not a "necessary" or "inherent" part of the "ancillary" equipment used in the procurement of ADPE, including "ancillary" equipment. Federal Procurement Act of 1940, 40 U.S.C.A. § 101.

**3. United States Court of Appeals**

Uninterruption of power is not a "necessary" or "inherent" part of the "ancillary" equipment used in the procurement of ADPE, including "ancillary" equipment. Federal Procurement Act of 1940, 40 U.S.C.A. § 101.

**1. Best Power Technology Sales Corporation, Appellant, v. Richard G. Austin, Administrator, General Services Administration, Appellee.** No. 11400-1, 1318, 1993-1, Nov. 13, 1993.

# CUSTOM ACCESSORIES v. JEFFREY-ALLAN INDUSTRIES

Cite as 807 F.2d 955 (Fed. Cir. 1986)

955

## APPENDIX—Continued

### EXHIBIT 6

#### DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

DATE: August 29, 1981

IN COPY  
REFER TO:

Airport Traffic Control Tower  
Andrews Air Force Base  
Camp Springs, MD 20724



SUBJECT:

TO: Linda Rose

Your letter dated August 19, 1981, requesting additional time in which to respond to your notice of intended removal issued August 7, 1981 was received in this office on August 20, 1981.

Since substantially more than the allowed seven days had expired without any response from you, I issued the decision letter on August 18, 1981. The decision letter was forwarded to you by first class and certified mail August 18, 1981.

However, we have carefully considered your request and find no reason to alter our decision.

The material relied upon to support the decision is available for review at Andrews AFB Control Tower, Camp Springs, Maryland. If you wish to review this material, please contact me.

*Charles Neugebauer*  
CHARLESAN NEUGEBAUER  
Chief, Andrews Tower



CUSTOM ACCESSORIES, INC.,  
Plaintiff-Appellant,

v.

JEFFREY-ALLAN INDUSTRIES, INC.,  
Defendant-Appellee.

Appeal No. 85-2728.

United States Court of Appeals,  
Federal Circuit.

Dec. 12, 1986.

Patent holder brought infringement action. The United States District Court for the Northern District of Illinois, James B. Moran, J., determined that claims of patent for mud flap and splash guard assemblies were obvious and invalid. Holder appealed. The Court of Appeals, Edward S. Smith, Circuit Judge, held that: (1) old or unpatentable nature of each element in

claimed invention for mud flap or splash guard assemblies did not determine that invention was obvious and that patent was invalid; (2) District Court was required to consider objective evidence of nonobviousness, which included evidence of copying and commercial success; and (3) District Court failed to make sufficient, required findings with regard to scope and content of prior art, differences between prior art and claims at issue, level of ordinary skill in art, and objective evidence of nonobviousness.

Vacated and remanded.

#### 1. Patents ¶26(1/4)

Old or unpatentable nature of each element in claimed invention for mud flap or splash guard assemblies did not determine that invention was obvious as a whole

and that patent was invalid. 35 U.S.C.A. § 103.

## 2. Patents ⇐16.9

Finding that invention is improvement is not prerequisite to patentability. 35 U.S.C.A. §§ 100-103.

## 3. Patents ⇐36.1(2), 36.2(1)

Trial court deciding obviousness of patent for mud flap and splash guard assemblies was required to consider objective evidence of nonobviousness, which included evidence of copying and commercial success; rejecting *Dual Mfg. & Eng'g, Inc. v. Burris Indus., Inc.*, 619 F.2d 660 (7th Cir.); *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963 (7th Cir.). 35 U.S.C.A. § 103.

## 4. Patents ⇐36.1(1)

Absence of objective evidence of nonobviousness does not preclude holding of nonobviousness, in that objective evidence of nonobviousness is not prerequisite to patentability. 35 U.S.C.A. § 103.

## 5. Patents ⇐36(2)

Alleged infringer of patent for splash guard and mud flap assemblies had burden to prove obviousness and invalidity of each claim by clear and convincing evidence. 35 U.S.C.A. §§ 103, 282.

## 6. Patents ⇐112.4

Trial court deciding obviousness of invention for splash guard and mud flap assemblies was required to consider result of reexamination proceeding in Patent and Trademark Office, which upheld validity of patent claims despite presence of similar art that was also presented before district court. 35 U.S.C.A. §§ 103, 282.

## 7. Patents ⇐314(6)

District court determining obviousness of invention for splash guard and mud flap assemblies failed to make sufficient, required findings with regard to scope and content of prior art, differences between prior art and claims at issue, level of ordi-

nary skill in art, and objective evidence of nonobviousness. 35 U.S.C.A. § 103.

## 8. Patents ⇐16(3)

Actual inventor's skill is not determinative in deciding whether invention was obvious to person having ordinary skill. 35 U.S.C.A. § 103.

## 9. Patents ⇐16(1)

Factors to be considered in determining level of ordinary skill in art in order to determine whether patent is obvious include type of problems encountered in art, prior art solutions to problems, rapidity with which innovations are made, sophistication and technology, and educational level of active workers in field. 35 U.S.C.A. § 103.

## 10. Patents ⇐324.60

Inadequacy of findings by district court to enable determination whether invention for mud flap and splash guard assemblies was obvious justified remand. 35 U.S.C.A. § 103.

Richard D. Harris of Dick & Harris, Chicago, Ill., argued for plaintiff-appellant. With him on the brief were Richard Eugene Dick and Max Shaftal of Dick & Harris, Chicago, Ill.

John C. Brezina of Brezina & Buckingham P.C., Chicago, Ill., argued for defendant-appellee. With him on the brief was David C. Brezina, of Brezina & Buckingham P.C., Chicago, Ill.

Before DAVIS and SMITH, Circuit Judges, and RE, Chief Judge.\*

EDWARD S. SMITH, Circuit Judge.

This is an appeal by Custom Accessories, Inc. (Custom), from a judgment of the United States District Court for the Northern District of Illinois, Eastern Division, holding invalid under 35 U.S.C. § 103 claims 1 and 6 of United States Patent No. 4,264,083 (the '083 patent). We vacate and remand.

designation.

\* The Honorable Edward D. Re, Chief Judge, United States Court of International Trade, sitting by

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### Background

The facts recited in this opinion, unless otherwise indicated, are either uncontested by the parties or are findings of the district court not shown to have been clearly erroneous. FED.R.CIV.P. 52(a).

#### 1. The Technology

Mud flap or splash guard assemblies are commonly used on motor vehicles to prevent damage to the frame due to pebbles, salt, mud, and other debris thrown from the vehicle path by rotating wheels. They are placed in close proximity to a wheel and occupy a rearward position relative to the primary direction of travel of the motor vehicle. The assembly usually includes a splash intercepting body portion, such as a flat resilient flap or a rigid metallic plate of light construction, anchored by a fastener to a fender area of the vehicle.

#### 2. The Patent

The '083 patent was issued on April 28, 1981, to Matthew, *et al.*, and was assigned to Custom. A reissue patent application was filed on June 23, 1981, in the name of the original inventors. On February 19, 1982, Pretty Products, Inc., filed a request for reexamination in light of nine references not considered during prosecution. On June 3, 1982, the United States Patent and Trademark Office (PTO) merged the reissue application with the reexamination proceeding. Custom then expressly abandoned the reissue application on June 17, 1982. Original claims 1 and 6 were amended during, and ultimately survived, reexamination. A reexamination certificate including those claims was issued on March 22, 1983.

Claim 1 reads as follows:

1. A splash guard or mud flap assembly for attachment to the fender of a motor vehicle, comprising: a flexible, splash-intercepting body portion: resilient, self-sustaining anchoring means for supporting the body portion and being adapted to be snugly engaged along the fender of a motor vehicle for securing the body portion in a splash-intercepting

position thereon, said anchoring means including a front wall and a back wall resiliently integrally joined along one side in substantial overlying relation to one another and converging in the direction of the free ends thereof, the free ends of said walls being resiliently separable a distance to enable the anchoring means to be snugly frictionally engaged on a motor vehicle fender, the resiliency of the anchoring means being such that the front wall and the back wall thereof provide substantially the total gripping force for maintaining the anchoring means on a motor vehicle fender while providing a rigid support base for the splash-intercepting body portion of the splash guard, and an outwardly extending pin-like member carried on the front wall of the resilient anchoring means in spaced, inward relation to the free ends of said walls of the anchoring means for engaging and retaining said body portion on the anchoring means, said pin-like member being provided with locking means for securing and maintaining the splash-intercepting body portion on the anchoring means, said locking means being characterized in that it overlies and is in contact with a sufficient area of the splash-intercepting body portion to resist any forces tending to dislodge said body portion from the pin-like member.

Claim 6 recites:

A splash guard or mud flap assembly as claimed in claim 1 wherein the pin-like member of the anchoring means is provided with external threads for receiving a nut-like retaining member for securing and maintaining the splash-intercepting body portion on the anchoring means, said nut-like retaining member being characterized in that the base of the nut-like retaining member overlies and is in contact with a sufficient area of said body portion to resist any forces tending to dislodge the body from the pin-like member.

#### 3. District Court Proceeding

Custom filed suit in the district court alleging infringement by appellee Jeffrey-

Allan Industries, Inc. (Jeffrey-Allan). Jeffrey-Allan denied infringement. It also raised as affirmative defenses and counter-claimed that claims 1 and 6 were invalid on the grounds of obviousness under 35 U.S.C. § 103, improper inventorship under 35 U.S.C. § 102(f), and overclaiming under 35 U.S.C. § 112.

The district court judge entered judgment for Jeffrey-Allan for the reasons contained in a July 26, 1985, "Memorandum and Order" that constituted the court's findings of fact and conclusions of law. The district court found claims 1 and 6 of the '083 patent invalid under 35 U.S.C. § 103,<sup>1</sup> but did not adjudicate any other issue. The Memorandum and Order does state, however, that "[d]efendant does not seriously contend that its splash guard assembly does not infringe."

#### Issue

Whether the district court erred in holding that claims 1 and 6 of the '083 patent are invalid under 35 U.S.C. § 103.

#### Opinion

Section 103 of 35 U.S.C. precludes a patent grant

if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. \* \*

Though the ultimate question is one of law, a determination of obviousness under section 103 is based on these factual inquiries set forth in *Graham v. John Deere Co.*:<sup>2</sup> (a) the scope and content of the prior art;

1. The Memorandum and Order actually concluded that the use of Custom's "anchoring means rather than another in an old combination was \* \* \* obvious." We presume the district court implicitly concluded that the inventions claimed by claims 1 and 6 would have been obvious.

2. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 86 S.Ct. 684, 693, 15 L.Ed.2d 545, 148 USPQ 459, 467 (1966).

(b) the differences between the prior art and the claims at issue; (c) the level of ordinary skill in the art; and (d) objective evidence of nonobviousness.<sup>3</sup>

Under *Graham*, a district court makes proper fact findings on those four inquiries and then assesses the ultimate legal question of nonobviousness. Thus, given the scope and content of the prior art, the differences between the claimed invention and the prior art, the level of ordinary skill in the art, and the existence of commercial success and any other objective considerations of nonobviousness, the district court determines whether the claimed invention would have been obvious to one of ordinary skill in the appropriate art at the time the invention was made.

At the conclusion of its 7½ page Memorandum and Order, the district court for the first time cites *Graham*, stating:

This court concludes, in accordance with the teachings of *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966); *Dual Mfg. & Engineering, Inc. v. Burris Industries, Inc.*, 619 F.2d 660 (7th Cir.) (en banc), cert. denied, 449 U.S. 870, 101 S.Ct. 208, 66 L.Ed.2d 90 (1980) and *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963 (7th Cir. 1979), that the use of that anchoring means rather than another in an old combination was, in the circumstances of this case, obvious within the meaning of section 103.

That fleeting reference to *Graham* does not convince us that the district court in fact properly analyzed obviousness using the *Graham* analysis. Indeed, Custom has persuaded us to the contrary. That *Graham* was not properly applied is evidenced

3. See *Bausch & Lomb, Inc. v. Barnes-Hind Hydrocurve, Inc.*, 796 F.2d 443, 447, 230 USPQ 416, 421 (Fed.Cir.1986); *Loctite Corp. v. Ultraseal, Ltd.*, 781 F.2d 861, 872, 228 USPQ 90, 97-98 (Fed.Cir.1986); *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163, 225 USPQ 34, 37 (Fed.Cir.1985).

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by the district court: (1) improperly focusing on "a combination of old elements"; (2) ignoring objective evidence of nonobviousness; (3) paying lip service to the presumption of validity; and (4) failing to make sufficient *Graham* findings.

A. *Improperly Focusing on a Combination of Old Elements.*

[1] In assessing the patentability of Custom's device, the district court's Memorandum and Order refers to "a combination of old elements," which "is not necessarily an invention" but is entitled to patent protection if the combination "causes a new and useful result." Though it perceives one of the elements (the protruding pin in the anchoring means) as possibly novel, it states:

A U-clip with a locked pin surely was not itself patentable as an independent invention. Indeed, the plaintiff cancelled claims limited to the anchoring means during reexamination, when they were rejected as obvious. \* \* \*

Such an approach is improper.

The dispositive question is not whether the claimed device is an "invention"; rather, it is whether the invention satisfies the standards of patentability. 35 U.S.C. §§ 100-103. To suggest that Custom's new combination "is not necessarily an invention" or otherwise to require some concept of "inventiveness" or "flash of genius" for patentability would improperly misplace the focus of 35 U.S.C. § 103.<sup>4</sup>

That each element in a claimed invention is old or unpatentable does not determine the nonobviousness of the claimed invention as a whole. "There is no basis in the

law \* \* \* for treating combinations of old elements differently in determining patentability."<sup>5</sup> As stated in *Stratoflex*:<sup>6</sup>

The reference to a "combination patent" is equally without support in the statute. There is no warrant for judicial classification of patents, whether into "combination" patents and some other unnamed and undefined class or otherwise. Nor is there warrant for differing treatment or consideration of patents based on a judicially devised label. Reference to "combination" patents is, moreover, meaningless. Virtually all patents are "combination patents," if by that label one intends to describe patents having claims to inventions formed of a combination of elements. It is difficult to visualize, at least in the mechanical-structural arts, a "non-combination" invention, i.e., an invention consisting of a single element. \* \* \* [Emphasis in original.]

Casting an invention as "a combination of old elements" leads improperly to an analysis of the claimed invention by the parts, not by the whole. That is what seems to have happened here. The critical inquiry is whether "there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination."<sup>7</sup>

A traditional problem with focusing on a patent as a "combination of old elements" is the attendant notion that patentability is undeserving without some "synergistic" or "different" effect. Here, the district court spoke of the need for "a new and useful result." Such tests for patentability have been soundly rejected by this court.<sup>8</sup>

4. Cf. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540, 218 USPQ 871, 880 (Fed.Cir.1983) (a trial judge's "reference to 'the heart of invention' was \* \* \* a \* \* \* fall-back to the fruitless search for an inherently amorphous concept that was rendered unnecessary by the statute, 35 U.S.C. The *Graham* analysis here applied properly looked to patentability, not to 'invention.'" (Emphasis in original.)).

5. *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed.Cir.1985).

6. *Stratoflex*, 713 F.2d at 1540, 218 USPQ at 880.

7. *Fromson*, 755 F.2d at 1556, 225 USPQ at 31 (emphasis in original), quoting *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed.Cir.1984); see also *In re Deminiski*, 796 F.2d 436, 442, 230 USPQ 313, 315-16 (Fed.Cir. 1986).

8. See, e.g., *Gardner v. TEC Sys., Inc.*, 725 F.2d 1338, 1349-50, 220 USPQ 777, 786 (Fed.Cir.) (in banc). cert. denied, 469 U.S. 830, 105 S.Ct. 116, 83 L.Ed.2d 60 (1984); *Stratoflex*, 713 F.2d at 1540, 218 USPQ at 880.

Though synergism is relevant when present, its "absence has no place in evaluating the evidence on obviousness."<sup>9</sup>

The district court's citation to *Dual Manufacturing*<sup>10</sup> together with *Graham v. John Deere*, supports our conclusion that the district court was misled by improper "combination" notions. *Dual Manufacturing* expressly adopts the type of rationale regarding "combination patents" and synergism that this court has expressly rejected and only serves to confuse the real test of obviousness prescribed by the 1952 Patent Act. Though *Republic Industries, Inc. v. Schlage Lock Co.*,<sup>11</sup> also cited by the district court, is more in tune with Federal Circuit precedent on combination patents and synergism, the possibility exists that the district court gave more credence to *Dual Manufacturing* because it was decided in banc and subsequent to *Republic Industries*.

#### B. Ignoring Objective Evidence of Nonobviousness.

[2] The district court found that Custom's "assembly was an improvement, as persuasively evidenced by its adoption by competitors."<sup>12</sup> Though "not a major breakthrough," stated the court, "it was a better mousetrap than those on the market," and "[o]thers have adopted that design, so that it has become a commonly

sold configuration, thus providing support for a contention of commercial success, although plaintiff has had virtually no success in persuading its competition to take licenses." After saying that, however, the district court seemed to ignore the concrete evidence of copying and commercial success. Failure to consider such evidence is clearly error.

[3,4] Under *Graham*, objective evidence of nonobviousness includes commercial success, longfelt but unresolved need, failure of others, and copying.<sup>13</sup> When present, such objective evidence must be considered.<sup>14</sup> It can be the most probative evidence of nonobviousness in the record, and enables the district court to avert the trap of hindsight.<sup>15</sup> On the other hand, the absence of objective evidence does not preclude a holding of nonobviousness because such evidence is not a requirement for patentability.<sup>16</sup> As stated in *Medtronic, Inc. v. Intermedics, Inc.*,<sup>17</sup> the absence of objective evidence "is a neutral factor."

The district court's failure to consider objective evidence was probably fueled by the two cases it cited together with *Graham*. Both *Dual Manufacturing* and *Republic Industries* mistreat the importance of objective evidence, such as commercial success. They incorrectly state that such

9. *Stratoflex*, 713 F.2d at 1540, 218 USPQ at 880.

10. *Dual Mfg. & Eng'g, Inc. v. Burris Indus., Inc.*, 619 F.2d 660, 205 USPQ 1157 (7th Cir.) (in banc), cert. denied, 449 U.S. 870, 101 S.Ct. 208, 66 L.Ed.2d 490 (1980).

11. *Republic Indus., Inc. v. Schlage Lock Co.*, 592 F.2d 963, 200 USPQ 769 (7th Cir.1979).

12. Finding that an invention is an "improvement" is not a prerequisite to patentability. It is possible for an invention to be less effective than existing devices but nevertheless meet the statutory criteria for patentability.

13. *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 316-17, 227 USPQ 766, 770-71 (Fed. Cir.1985); see also *Windsurfing Int'l, Inc. v. AMF Incorporated*, 782 F.2d 995, 1000, 228 USPQ 562, 565 (Fed.Cir.), cert. denied, — U.S. —, 106 S.Ct. 3275, 91 L.Ed.2d 565 (1986).

14. *Loctite*, 781 F.2d at 873, 228 USPQ at 98; *Bausch & Lomb*, 796 F.2d at 450, 230 USPQ at 420; see also *Simmons Fastener Corp. v. Illinois Tool Works*, 739 F.2d 1573, 1575, 222 USPQ 744, 746 (Fed.Cir.1984), cert. denied, 471 U.S. 1065, 105 S.Ct. 2138, 85 L.Ed.2d 496 (1985).

15. *Pentec*, 776 F.2d at 315, 227 USPQ at 770; *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1555, 220 USPQ 303, 314 (Fed.Cir. 1983); *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895, 221 USPQ 669, 675 (Fed.Cir.1984).

16. See, e.g., *Leinoff v. Louis Milona & Sons, Inc.*, 726 F.2d 734, 740, 220 USPQ 845, 849 (Fed.Cir. 1984).

17. *Medtronic, Inc. v. Intermedics, Inc.*, 799 F.2d 734, 739, 230 USPQ 641, 643 (Fed.Cir.1986).

objective criteria "without invention will not make patentability."<sup>18</sup>

C. *Paying Lip Service to the Presumption of Validity.*

[5] A patent is presumed valid. 35 U.S.C. § 282. Indeed, each claim of a patent is presumed valid independently of the validity of other claims. *Id.* The burden is on the party asserting invalidity to prove the invalidity of each claim (here, claims 1 and 6) with facts supported by clear and convincing evidence.<sup>19</sup>

Though the district court stated that the presumption operates to "shift the burden of proof," the Memorandum and Order does not indicate a recognition by the district court that the burden is by clear and convincing evidence. Moreover, the Memorandum and Order occasionally suggests that the district court may have incorrectly placed the burden on the patentee to establish validity. For example, it states: "This court finds unpersuasive plaintiff's contention that Bedford does not anticipate . . . ." <sup>20</sup>

[6] Nor did the district court give any credence to the PTO reexamination proceeding, which upheld the validity of claims 1 and 6 despite the presence of much the same art as was presented before the district court. In *Interconnect Planning Corp. v. Feil*,<sup>21</sup> this court stated that an examiner's decision on an original or reissue application is "evidence the court must consider in determining whether the party

asserting invalidity has met its statutory burden by clear and convincing evidence," and that, upon reissue, the burden of proving invalidity was "made heavier."<sup>22</sup>

D. *Failing To Make Sufficient Graham Findings.*

[7] The amount and specificity of findings needed are determinations to be made on a case-by-case basis.<sup>23</sup> "[W]e must be convinced from the opinion that the district court actually applied *Graham* and must be presented with enough express and necessarily implied findings to know the basis of the trial court's opinion."<sup>24</sup> Certainly, when significant legal errors are reflected in the opinion, as here, which themselves shed doubt on the district court's use of *Graham*, the need for findings becomes greater and their absence rises to the level of error.<sup>25</sup>

In this case, the failure of the district court to make sufficient *Graham* findings further supports our conclusion that *Graham* was not in fact properly applied. The findings were insufficient in at least three regards:

(1) *Scope and Content of Prior Art/Differences Between Prior Art and Claimed Invention*

The Memorandum and Order briefly discusses as prior art United States patents to Bedford, Jr., and to Wootton, a line of

18. *Dual Mfg.*, 619 F.2d at 666, 205 USPQ at 1164; *Republic Indus.*, 592 F.2d at 975, 200 USPQ at 777. In *Stratoflex*, 713 F.2d at 1539, 218 USPQ at 879, this court expressly rejected that notion as circular reasoning.

19. *Loctite*, 781 F.2d at 872, 228 USPQ at 97; *SSIH Equip., S.A. v. USITC*, 718 F.2d 365, 375, 218 USPQ 678, 687 (Fed.Cir.1983).

20. Anticipation is a consideration under 35 U.S.C. § 102, which states in subsection (a) that a person is not entitled to a patent if the invention was "patented or described in a printed publication." A reference "anticipates" when it includes each element of the claimed invention. Section 102 of 35 U.S.C. was not applied by the district court as a ground for invalidating claims 1 and 6.

21. *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1139, 227 USPQ 543, 548 (Fed.Cir.1985) (quoting *Fromson*, 755 F.2d at 1555, 225 USPQ at 31).

22. *Accord American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1364, 220 USPQ 763, 774 (Fed.Cir.), cert. denied, 469 U.S. 821, 105 S.Ct. 95, 83 L.Ed.2d 41 (1984) (upon reissue in light of prior art before the district court, the "burden of proof of unpatentability has become more difficult to sustain").

23. *Loctite*, 781 F.2d at 873, 228 USPQ at 98.

24. *Id.*

25. *Id.*; *Jones v. Hardy*, 727 F.2d 1524, 1529, 220 USPQ 1021, 1025 (Fed.Cir.1984).



"Au-ve-co" devices, a Tinnerman parts catalogue, and a Rubber Queen assembly. However, the Memorandum and Order does not make clear which reference/devices (references) or combination of references provides the basis for determining obviousness. It is also not clear what teachings are relied on from each reference, and how each reference differs from the claimed invention.

Some differences were found, but improperly considered by the district court. For one, the district court did not find a teaching in any reference of a pin protruding or extending from a clip, but dismissed that difference by stating:

That the Au-ve-co unit and the Wootton patent disclosed an anchoring means in which a bolt threaded into the clip rather than a pin projecting from the clip does not dilute the force of the disclosure. Indeed, the idea taken to DeChant could have ended up in commercial production in that form. \* \* \*

It is unclear what is meant by "does not dilute the force of the disclosure." Clearly, the district court identified a difference between the claimed invention and the prior art—the protruding pin. Before deeming the claimed invention obvious, the district court would have to find some suggestion in the references for using an "outwardly extending pin-like member," as required by the claims.

The district court also stated:

What was brought to him [DeChant, who designed the fastener] was the idea, reduced to practice in a primitive form, of an anchoring means in a splash guard assembly which used a pin attached as part of a clip and projecting through the splash guard. There was no reason, in light of the conception, that the attachment to the clip could not have been by

screwing a bolt into threads [like in the prior art] \* \* \*.

That approach appears inappropriately to perceive an element of the claimed invention (i.e., a pin as part of the clip protruding through the splash guard) broadly as an "idea" or "conception" (screwing a bolt into threads) that the district court viewed as being old in the prior art. Such treatment emasculates a real difference in this case between the claimed invention and the prior art.

### (2) Level of Ordinary Skill

The *Graham* analysis includes a factual determination of the level of ordinary skill in the art. Without that information, a district court cannot properly assess obviousness because the critical question is whether a claimed invention would have been obvious at the time it was made to one with ordinary skill in the art.<sup>26</sup> The important consideration is "the need to adhere to the statute, i.e., to hold that an invention would or would not have been obvious, as a whole, when it was made, to a person of 'ordinary skill in the art'—not to the judge, or to a layman, or to those skilled in remote arts, or to geniuses in the art."<sup>27</sup>

[8,9] The person of ordinary skill is a hypothetical person who is presumed to be aware of all the pertinent prior art.<sup>28</sup> The actual inventor's skill is not determinative.<sup>29</sup> Factors that may be considered in determining level of skill include: type of problems encountered in art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.<sup>30</sup> Not all such

26. *Stratoflex*, 713 F.2d at 1538, 218 USPQ at 878-79.

27. *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 697, 218 USPQ 865, 868-69 (Fed. Cir.1983), cert. denied, 464 U.S. 1043, 104 S.Ct. 709, 79 L.Ed.2d 173 (1984).

28. See, e.g., *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 454, 227 USPQ 293, 297 (Fed.Cir.1985).

29. *Id.*

30. *Environmental Designs*, 713 F.2d at 696, 218 USPQ at 868.

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factors may be present in every case, and one or more of them may predominate.<sup>31</sup>

In appropriate cases we have noted a district court's failure to make a specific, or correct, finding on level of skill, without the consequence of reversal.<sup>32</sup> In those instances, however, it was not shown that the failure to make a finding or an incorrect finding on level of skill influenced the ultimate conclusion under section 103 and, hence, constituted reversible error.

In the present case, we do not reverse or vacate solely because of a failure to make the level of skill finding. We merely consider the district court's failure to make that and other *Graham* findings as evidence that *Graham* was not in fact applied.<sup>33</sup>

### (3) Objective Evidence of Nonobviousness

It is difficult for us to tell from the district court's discussion of commercial success (see discussion at section B, *supra*) whether there was a finding of commercial success and, if so, whether there was "nexus" between the commercial success and the claimed invention. Such nexus, the existence of which Jeffrey-Allan on appeal disputes, is needed if commercial success is to be considered.<sup>34</sup>

### Conclusion

[10] If, on review of a determination of obviousness, an appellant shows that the district court incorrectly applied the law, we will not reverse (i.e., hold that defendant below failed to prove obviousness) unless appellant also convinces us that a proper application of the law to the facts of

record would change the result.<sup>35</sup> Sometimes, however, an appellant will convince us that the law was incorrectly applied, but there are inadequate findings by the district court to enable us to determine independently whether defendant below did or did not prove that the invention would have been obvious. That has happened here because, as explained above, there are inadequate findings in a number of regards. In such circumstances, rather than find material facts ourselves, we must remand to allow the district court to do so. As stated in *Icicle Seafoods, Inc. v. Worthington*:<sup>36</sup>

If the Court of Appeals believed that the District Court had failed to make findings of fact essential to a proper resolution of the legal question, it should have remanded to the District Court to make those findings. If it was of the view that the findings of the District Court were "clearly erroneous" within the meaning of Rule 52(a), it could have set them aside on that basis. If it believed that the District Court's factual findings were unassailable, but that the proper rule of law was misapplied to those findings, it could have reversed the District Court's judgment. But it should not simply have made factual findings on its own.

Hence, we vacate the judgment of the district court and remand for further proceedings. The district court, based on the record before it and in light of the guidance provided herein, is instructed (1) to make proper findings underlying a determination under section 103, sufficient for us to review its judgment and to assure us that the *Graham* test was in fact applied, and (2) to

case, the district court made no similar notation.

31. *Id.*  
32. See, e.g., *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1574, 230 USPQ 81, 86 (Fed.Cir.1986); *Union Carbide Corp. v. American Can Co.*, 724 F.2d 1567, 1573, 220 USPQ 584, 589 (Fed.Cir.1984); *Chore-Time Equip., Inc. v. Cumberland*, 713 F.2d 774, 779, 218 USPQ 673, 676 (Fed.Cir.1983).

33. In *Chore-Time* and *Union Carbide*, this court noted that the prior art itself reflects an appropriate level of skill. See also *Litton Indus.*, 755 F.2d at 163-64, 225 USPQ at 38. In the present

34. *Cable Elec. Prods., Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1026, 226 USPQ 881, 887 (Fed.Cir. 1985).

35. See, e.g., *Carella v. Starlight Archery & Proline Co.*, 804 F.2d 135, 140 (1986); *Union Carbide*, 724 F.2d at 1523, 220 USPQ at 589.

36. *Icicle Seafoods, Inc. v. Worthington*, — U.S. —, 106 S.Ct. 1527, 1530, 89 L.Ed.2d 739 (1986).

determine whether defendant below has carried its burden of showing by clear and convincing evidence that the claimed invention would have been obvious under section 103. If the district court deems it appropriate, it may elicit new evidence.

On remand, the district court should also address the other issues presented, *e.g.*, "overclaiming," the section 102(f) defense, and infringement, and should enter judgment accordingly. That way, we need not remand the case should we reverse the district court, in a future appeal, on, *e.g.*, a determination of obviousness. Too often, district courts resolve only one of a number of issues presented and, when reversed on that issue, are forced to retry the remainder of the case. Such retrial is, on balance, an inefficient use of the judicial process. It can, for example, involve duplication of much of the testimony and evidence presented at the first trial.<sup>37</sup>

#### VACATED AND REMANDED



**BIO-RAD LABORATORIES, INC.,  
etc., Appellant,**

v.

**NICOLET INSTRUMENT  
CORPORATION, etc.,  
Appellee.**

Appeal No. 86-840.

United States Court of Appeals,  
Federal Circuit.

Dec. 16, 1986.

Appeal was taken from decision of the United States District Court for the Northern District of California, Lloyd H. Burke, J., finding patent valid and infringed. The Court of Appeals, 739 F.2d 604, vacated

37. See, *e.g.*, *Stratoflex*, 713 F.2d at 1540-41, 218

and remanded in part and affirmed in part. On remand, the District Court limited prejudgment interest to nine months, and appeal was taken. The Court of Appeals, Friedman, Circuit Judge, held that: (1) district court's finding in support of its limitation of prejudgment interest that patent owner delayed beginning of trial by six months was clearly erroneous; (2) time it took patent owner to file patent infringement suit did not constitute "undue delay" for purposes of denying owner prejudgment interest; (3) limitation of prejudgment interest to nine months could not be justified as sanction for abuse of discovery process by patent owner; and (4) patent owner's alleged delay in bringing case to trial or alleged discovery improprieties did not warrant using seven percent rate of un-compounded interest as prejudgment interest rate.

Vacated and remanded.

Baldwin, Senior Circuit Judge, filed concurring opinion.

#### 1. Patents ⇐319(4)

District court's finding in support of its limitation of prejudgment interest that patent owner delayed beginning of trial by six months was clearly erroneous, where trial date was set at first status conference, trial commenced only one day after specified date, and there was no indication that, but for behavior of patent owner, trial could or would have begun earlier.

#### 2. Patents ⇐319(4)

Time it took patent owner to file patent infringement suit did not constitute "undue delay" for purposes of denying patent owner prejudgment interest.

See publication Words and Phrases for other judicial constructions and definitions.

#### 3. Patents ⇐319(4)

Dilatory action during discovery, without resultant delay in trial, does not justify limiting period of prejudgment interest.

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Supreme Court of the United States


LOOM COMPANY [FN\*]

FN\*[ Editor's Note: also reported in some  
sources as Webster Loom Co.].


v.  
HIGGINS.

October Term, 1881

West Headnotes

**Evidence** 75  
157k75 Most Cited Cases

Where alleged infringers had it in their power to produce application in support of their defense of prior use, but did not, it was to be presumed that application would not have served their purpose.

**Evidence** 457  
157k457 Most Cited Cases

Parol evidence is admissible to show the meaning of terms used in letters patent, as well as the state of the art.

**Patents** 12  
291k12 Most Cited Cases

William Webster's improvement in looms for weaving pile fabrics consists of such a combination of known devices as to give a loom the capacity of weaving 50 yards of carpet per day, when before it could only weave 40. *Held*, that the improvement was patentable, and letters patent No. 130,961, granted to him therefor, were valid.

**Patents** 26(2)  
291k26(2) Most Cited Cases

If a new combination and arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of "invention."

**Patents** 97  
291k97 Most Cited Cases

The application for a patent was a public record, the contents of which alleged infringers and all others were presumed to know.

**Patents** 99  
291k99 Most Cited Cases

The applicant for a patent need not describe the engine, nor the particular appendage to which his improvement refers nor its mode of connection with principal machine but may begin at the point where his invention begins and describe what he has made that is new and what it replaces of the old.

**Patents** 99  
291k99 Most Cited Cases


A specification is sufficient if a mechanic skilled in the art to which the invention pertains can, from the specification and drawings, construct and use the invention described.

**Patents** 99  
291k99 Most Cited Cases

If an improvement of a well-known appendage to a machine is fully described in a specification, it need not show the ordinary modes of attaching the appendage to the machine.

**Patents** 100  
291k100 Most Cited Cases


An invention relating to machinery may be exhibited as well in a drawing as in a model.

**Patents** 157(1)  
291k157(1) Most Cited Cases

That which is common and well known is as if it were written out in the patent and delineated in the drawings.

**Patents** 159  
291k159 Most Cited Cases

The court may resort to the evidence to enable it to understand the terms used in patent and the devices and operations described or alluded to therein.

**Patents** 324.1  
291k324.1 Most Cited Cases  
(Formerly 291k324(1))

An objection to evidence of prior invention if not taken in the court below or before the examiner when witnesses were examined cannot be taken in the Supreme Court.

APPEAL from the Circuit Court of the United States for the Southern District of New York.

The facts are stated in the opinion of the court.

*Mr. Edward N. Dickerson* for appellant.

*Mr. George Gifford* and *Mr. William M. Evarts* for the appellees.

MR. JUSTICE BRADLEY delivered the opinion of the court.

The bill in this case was filed by the Webster Loom Company to obtain relief for an alleged infringement by the defendants of certain letters-patent for improvements in looms for weaving pile fabrics, &c., granted to one William Webster on the twenty-seventh day of August, 1872, and numbered 130,961, to which the plaintiff derails title. The defences set up in the answer are, 1st, a denial of infringement; 2d, a denial that Webster was the first inventor of what was patented to him, under which denial various prior letters-patent are specified as containing the invention or material parts thereof, including a patent granted to Erastus B. Bigelow in March, 1849, reissued in 1857, a patent granted to E. S. Higgins as assignee of William Weild in August, 1868, and a patent granted to E. K. Davis in February, 1869; 3d, that the invention was used by and known to E. K. Davis in the city of New York, and Thomas Crossley in New York and Bridgeport, Conn.; 4th, that the description in Webster's patent is obscure, and not sufficient to enable one acquainted with the art to which it belongs to construct or use the loom therein attempted to be described; 5th, that there is no description in the patent of the combination principally claimed and relied on. The answer also sets up an agreement between Webster and the defendants whereby they claim a right to use the alleged invention of Webster. Proofs having been taken and the cause heard, the bill was dismissed by the Circuit Court. From the decree of dismissal the company appealed.

The patent, as before stated, is for improvements in looms for weaving pile fabrics, &c., and the nature and object of the invention are set forth in the

specification as follows:----

'The first part of my invention relates to the combination and arrangement of the reciprocating or driving-slide, sliding-bar, withdrawing \*582 and inserting devices, and trough in such a manner that the trough shall be capable of oscillating between the points of withdrawal and insertion of the wire, the sliding-bar receiving a horizontal motion at the same time that the pushing- slide is being reciprocated on the trough by the driving-slide. The advantage of this part of my invention is that a shuttle-box, rigidly connected with the lay, may be used. The second part of my invention relates to the means for preventing the wire from bounding back from its position in the wire-box, and consists in a spring attached to the inner end of the wire-box, and fitting indentations or openings in the heads of the wires. The third part of my invention relates to the combination of the vibrating trough directly with the lay. The fourth part of my invention relates to a modification of the mechanism, and consists in having the oscillating-trough and reciprocating- slide pathway combined or made in one piece, and having the withdrawing and pushing devices combined or connected and reciprocated thereon by power applied directly thereto; the object of this part of my invention being to dispense with the driving-slide and stationary-slide pathway and sliding-bar. The fifth part of my invention consists in the combination, with a lay having a rigid shuttle-box, of a pivoted vibrating wire-trough, a reciprocating driving-slide, and latch, the latter being operated by the wire-box to release the wire, and the slide and latch moving on the trough, all as set forth.'

The specification then proceeds to describe the mechanism of the invention by a description and reference to drawings, which exhibit a front view of the improvement, a top view, a wire-head, a sectional part and end view of the wire-box, the oscillating trough connected to the shuttle-box or lay of a loom, the same connected to the breast-beam of a loom, &c.,--all which would be incomprehensible to a person unacquainted with looms for weaving pile fabrics, but very plain to one who understood their construction and operation at the date of the patent. A person skilled in the art of constructing or using such looms in their most advanced and improved form, such as those known as the Bigelow loom and the Weild loom, and having one actually before him, or in his mind, would readily appreciate the meaning of the terms and the character of the improvement described.



In weaving pile fabrics, such for example as Brussels carpet, \*583 the pile or loop is formed by inserting a wire alternately with the filling between the threads of the warp, immediately under the woollen, or worsted, threads, and afterwards withdrawing it from the web of cloth. At first, these wires were inserted and withdrawn by hand, by the aid of an assistant, which made the process a very slow one, so that only a few yards could be woven in a day on a single loom. The first great improvement was introduced about 1840-50 by Erastus B. Bigelow, of Massachusetts, who invented a mechanical apparatus attached to the side of the loom which automatically inserted the wires in the shed, or opening between the warps, and withdrew them from the web. About a dozen wires were used, and after they had all been inserted, the device invented by Bigelow would vibrate forward and seize the head of the first wire, withdraw it from the web, and then vibrate back to the shed, and at the proper moment insert it; and so it would go on to operate as long as the loom was kept in motion. Its various motions were given and timed by means of cams of proper size and shape placed in connection with the principal movements of the loom itself. This attachment to pile-fabric looms became generally known as the wire movement; and by its aid twenty-five yards a day could be woven on a single loom without the aid of any assistant. It is seldom that such a complete revolution in one of the useful arts is made at a single jump. Improvements, however, have been made on Bigelow's invention. Amongst others, one William Weild, of Manchester, England, in or about the year 1855 effected a decided improvement, which, after being perfected by succeeding improvements, enabled him to weave thirty or forty yards a day on a single loom. The means by which this was accomplished was the placing of a horizontal trough, or grooved bar, called a wire-trough, or wire-bar, for the wire to rest on when drawn out of the web and thrust into the shed. In Bigelow's loom the wire simply rested on a fork placed close to the loom; and when it was fully drawn out by the clamp, or dog's head, which seized it for that purpose, being slender and flexible, it would sag in the middle, and, if driven rapidly into the shed, the forward end would spring upward and get entangled in the upper warp threads. This rendered a slow movement necessary, \*584 which impeded the rapidity of the work. By giving it a trough, or grooved bar, to lie in, and keeping it straight, as was done by Weild, a quicker motion could be given to it, and a much larger amount of work could be done in the same time. The only difficulty in the way of operating with the trough as arranged by Weild was, that a certain part of the

apparatus, called a pusher, which was a cross-bar or yoke, extending across and connecting the breast-beam and the wire-bar, and which was employed to push the wire into the shed, extended so far back towards the lathe, or lay, which carries the reed and shuttle-box, as to come in contact with it and interfere with its motion. Weild obviated this difficulty by sawing off (so to speak) the outer end of the lay containing the shuttle-box, which being thus detached from the rest of the lay could be separately kept back whilst the reed was driving up the filling, and was thus prevented from striking the wire-trough and pusher. But, of course, this detached portion of the lay required additional cam work, and complicated the machinery. There was also another matter that interfered with the perfect efficiency of Weild's loom. The pusher, after the wire was drawn out by a hook attached, did not seize the head of the wire, but simply pushed it forward into the shed. If this was done with too rapid a motion, the impetus given to the wire would throw it forward too far in case the loom had to be suddenly stopped on account of a broken thread or other cause. This made it necessary to work the loom more slowly than the other operations required.

This seems to have been about the state of the art when Webster began to devote his attention to the improvements which he claims to have invented, and which it is clearly shown, whether invented by him or some one else, resulted in giving to a loom the capacity of weaving fifty yards a day. The Bigelow looms were well known and in extensive use. The Weild looms were also well known. Some improvements, not necessary to notice, had also been made on both. Webster's first conception of his invention occurred, and his original drawing was made, in the winter of 1865-66; but he did not apply for his patent until June 21, 1870; and it was not issued until Aug. 27, 1872. Prior to that time the defendants, who had a \*585 large establishment in the city of New York, and were using Bigelow's loom under a license, had procured the control of Weild's patents in this country, and had applied Weild's improvements, with some modifications made by E. K. Davis, to a large number of their Bigelow looms. Davis was their head machinist, and in 1868 he obtained a patent for an improvement on Weild's loom, by which, instead of detaching the whole outer end of the lay, he only detached the shuttle-box and caused it to slide back on the lay so as to make room for the wire-trough. He also adopted instead of the wire-trough a pair of parallel bars between which to move the wire, the latter resting on a pin between the bars, near to the loom. The loom itself was old.

Every part of it was familiar to every loom manufacturer and to every weaver. Its lathe, its treddles, its breast-beam, its shuttle-boxes, and shuttle-slide were as well known to all those concerned in the weaving of pile fabrics, as the plow or the cultivator is to the farmer. The wire motion had also become well known. Its mode of attachment to the loom; the means of giving motion to its different parts; the parts themselves; the vibrating wire-support, whether a fork or a trough, and whether pivoted to the breast-beam or to a post or to the frame or floor; the reciprocating driving-slide; the dog's head for holding, and the pusher for driving, the wires; the wire-box that kept the wires in place; the rigid lathe; the lathe whose outer end was detached; and the lathe with a detached shuttle-box,--all these things were as well known as the alphabet to all those skilled in the art of pile weaving, as it then stood. With this mass of previous knowledge and nomenclature in their minds (as we must suppose it to have been), the language, the explanations, the drawings, and the claims of Webster's patent must have been perfectly intelligible to them. When an astronomer reports that a comet is to be seen with the telescope in the constellation of Auriga, in so many degrees of declination, and so many hours and minutes of right ascension, it is all Greek to the unskilled in science; but other astronomers will instantly direct their telescopes to the very point in the heavens where the stranger has made his entrance into our system. They understand the language of their brother scientist. If a mechanical engineer invents an improvement \*586 on any of the appendages of a steam-engine, such as the valve-gear, the condenser, the steam-chest, the walking-beam, the parallel motion, or what not, he is not obliged, in order to make himself understood, to describe the engine, nor the particular appendage to which the improvement refers, nor its mode of connection with the principal machine. These are already familiar to others skilled in that kind of machinery. He may begin at the point where his invention begins, and describe what he has made that is new, and what it replaces of the old. That which is common and well known is as if it were written out in the patent and delineated in the drawings.

Applying these remarks to the specification before us, and recurring to the extract already made, setting forth the nature and object of the invention, it is easy to conceive that its meaning may be plain to those for whose use it is intended. They know at once what is meant by the terms, 'reciprocating or driving slide,' 'sliding-bar,' 'withdrawing and inserting devices,' 'trough,' 'wire,' 'wire-box,' 'lay,' &c. They also

understand the movements referred to, and the objects to be attained by each device.

In like manner, if we follow the specification in its description of the invention in detail, with the references to the drawings, and the closing summary of the patentee's claims, the same method of interpretation will be applicable. And as it cannot be expected that the court will possess the requisite knowledge for this purpose, it becomes necessary that it should avail itself of the light furnished by the evidence to enable it to understand the terms used in the patent and the devices and operations described or alluded to therein. This evidence, of which the record in this case furnishes an abundance, being resorted to, we have no difficulty in comprehending the patent, or the nature of the invention therein described.

A great deal of testimony was introduced by the defendants to show that the patentee had failed to describe his invention in such full, clear, and exact terms as to enable persons skilled in the art to construct and use it. It seems to us that the attempt has failed. When the question is, whether a thing can be done or not, it is always easy to find persons ready to show how not to do it. But it stands confessed that the thing has \*587 been done, that is to say, the contrivance which Webster claims in his patent has been applied, and very successfully so, to pile-fabric looms, and, as the appellant's counsel well remarks, no one except Webster has ever appeared to claim a patent for doing it. If the thing could not be understood without the exercise of inventive power, it is a little strange that it should have been so easily adapted to the looms on which it has been used with such striking results.

It is worthy of remark, in this connection, that the defendants, in their answer, state it as a fact, that, prior to the alleged invention of Webster, looms containing lays having shuttle-boxes rigidly attached were publicly known and described in certain English patents, which they specify; and that all the other parts and elements mentioned in the fifth claim of Webster's patent (being the claim relied on) were described in another English patent of one Birkbeck; and they aver and insist, as will be more fully noticed hereafter, that the application and use of the two things together, that is, the parts described in Birkbeck's patent, with the rigid lay and shuttle-box described in the other patents, were obvious and required no invention; and that, therefore, the alleged invention of Webster was well known, and constituted a part of the known state of the art. This

avement in the answer, which of course is sworn to, does not seem to tally very well with the allegation that Webster has failed to point out, in his patent, how to use and apply his invention, and that it requires further invention to use and apply it.

The appellants, indeed, have raised the question whether evidence to show that the invention is not described in the patent in such full, clear, and exact terms as to enable a person skilled in the art to construct and use it, is admissible, unless the defence is specially set up in connection with a charge that the description in the patent was made defective for the purpose of deceiving the public. The twenty-sixth section of the act of 1870, under which the patent in question was issued, declares, 'that before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the commissioner, and shall file in the Patent Office a written description of the same, and of the \*588 manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle so as to distinguish it from other inventions; and he shall particularly point out, and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.' Such a specification must be filed before the inventor shall receive a patent, the law says; and the appellant's counsel argues that if it is the duty of the commissioner to see that such a specification as the law requires is filed before granting a patent, not only is the patent, when issued, proof that he has done so, but his decision on the point cannot be questioned except in the manner allowed by the law; else, instead of one tribunal for deciding a matter on which conflicting testimony can always be found, we shall have as many tribunals as there are courts and juries called upon to try patent causes. On turning to the section which provides for certain defences that may be made to an action for infringement, we find it declared 'that in an action for infringement the defendant may plead the general issue, and having given notice in writing to the plaintiff or his attorney, thirty days before, may prove on trial any one or more of the following special matters: First, that for the purpose of deceiving the public the description and specification filed by the patentee in the Patent Office was made to contain less than the whole truth relative to his invention or

discovery, or more than is necessary to produce the desired effect;' then follows a statement of other special matters. In view of this specific defence allowed by the statute, in reference to a defective specification, it is argued that no other is admissible under that head: and reference is made to some decisions under the former statutes bearing on that subject, namely, Whittemore v. Cutter, 1 Gall. 429; Lowell v. Lewis, 1 Mason, 182; Gray v. James, Pet. C. Ct. 394; Grant v. Raynond, 6 Pet. 218; this court, in the last case, holding, contrary to the decisions of Judges Story and Washington in the other cases, that it was not necessary \*589 to aver a fraudulent intent unless the defendant desired to avoid the patent,--a result which was provided for in the law of 1793. The court held that the plea of insufficient description was good as a defence without alleging a fraudulent intent,--but not good as a ground for avoiding the patent. The laws of 1836 and 1870 omitted the clause for annulling the patent, but still retained, in the definition of the defence allowed to be set up, the qualification of fraudulent intent. Counsel argues that, as the law now stands, the plea of insufficient description cannot be made unless made with that qualification; because the only purpose it has, under the present law, is that of a defence to the action, and it still requires the allegation of fraudulent intent to deceive the public.

There is plausibility in this argument, and if it were necessary to the decision of this case, it might give us some embarrassment. But as we are satisfied that the terms of the patent are sufficiently clear and full in the description of the invention, we make no decision on the point.

Turning now to the invention claimed by Webster, and described in the patent under consideration, we find that, although it produced a great improvement in the art of weaving pile fabrics, yet, as actually exhibited in conception and accomplishment, it seems simple. The thing to be done was to combine the advantages of Bigelow's rigid lathe, divested of some of its defects, and his constant command of the wire, with Weild's trough, or wire-bar, for supporting the wire. This Webster, or, if not Webster, some other person, effected by the devices and mechanism described in the patent. Stated in brief as therein set forth, aided by the explanatory testimony before referred to, the problem was solved by substituting for Weild's pusher a latch which rides on the wire-bar, or trough, without projecting beyond it, and which receives a reciprocating motion backward and forward on the bar, either by being connected with a driving-slide moving on the breast-beam, or by being

directly connected with an upright reciprocating lever. The latch, when the end of the wire-bar next to the loom oscillates or vibrates to the front of the wire-box, drops upon a wire-head into a nick or notch made therein, and withdraws the wire into the trough, and then, when the latter oscillates back to the \*590 shed, without releasing its hold of the wire-head, drives the wire into the shed, and is then lifted out of the notch by striking the edge of the wire-box, sloped up for that purpose, and releases the wire; and then oscillates forward again to seize another wire; and so on. The lathe, in the mean time, works backward and forward without meeting any obstruction, and without any detachment or separation of its parts. Very little modification had to be made in the cams, and the whole apparatus, or wire movement, as it is called, seems more simple than it was before, either in Bigelow's or Weild's loom. This contrivance, when actually applied to the looms, worked to perfection, and enabled the weaver to drive his loom to its utmost capacity.

The patent points out and the drawings illustrate various ways of arranging the wire-bar and the reciprocating-slide which carries the latch. Thus, the outer end of the wire-bar having to be pivoted to some centre for its oscillating motion, it is shown that it may be pivoted to the outer end of the lay or shuttle-box, or to the outer end of the breast-beam, or to a vertical shaft or post,—all these devices except the first being in common use in the Bigelow or Weild looms, and being mechanical equivalents of each other. So it is shown that the pushing-slide, which carries the latch, and rides on the wire-bar like a saddle, may be operated either by being connected with a driving-slide on the extension of the breast-beam by means of a cross-bar passing through a mortise in the driving-slide, or by being directly connected with the arm or lever producing the reciprocating movement.

The patent has five claims, only the fifth of which is relied on in this case, which is as follows:----

'In combination, the lay and its rigid shuttle-box, the pivoted vibrating wire-trough, the reciprocating driving-slide, and the latch moving thereon, the latter being operated by the wire-box, the combination being and operating substantially as described.'

With the explanation of the invention already given, the meaning of this claim is quite obvious. If any explanation of it is needed, it can be readily derived from the body of the specification. The combination contains five elements: 1, the rigid lay and shuttle-

box; 2, the pivoted oscillating or vibrating \*591 trough; 3, the reciprocating-slide riding on the trough; 4, the latch for taking and holding the wire; 5, the operation or lifting of the latch by striking the wire-box.

Nothing further is necessary to be said in order to dispose of the defence which was strenuously urged, and to which the court below attached much importance, that the specification was insufficient in its description of the invention sought to be patented, and failed to show any means of applying it to existing looms; and that independent invention would have to be exercised to make it a practical working apparatus as an attachment of such looms. We shall, therefore, dismiss that branch of the argument.

It is further argued, however, that, supposing the devices to be sufficiently described, they do not show any invention; and that the combination set forth in the fifth claim is a mere aggregation of old devices, already well known; and therefore it is not patentable. This argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed,—one which would occur to any mechanic skilled in the art. But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skilful persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice. Who was the first to see it, to understand its value, to give it shape and form, to bring it into notice and urge its adoption, is a question to which we shall shortly give our attention. At this point we are constrained to say that we cannot yield our assent to the argument, that the combination of the different parts or elements for attaining the object in view was so obvious as to merit no title to invention. Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result, never attained before, it is evidence of invention. It was certainly a new and useful result to make \*592 a loom produce fifty yards a day when it never before had produced more than forty; and we think that the combination of elements by which this was effected, even if those elements were separately known before, was invention sufficient to form the basis of a patent.

The next contention of the defendants which we shall consider is their allegation that Webster was not the first and original inventor of the thing patented, but that he was anticipated therein by E. K. Davis.

On this point, we think it very clearly made out, though we shall not go into much detail in commenting upon the evidence, that the whole substance of the invention was conceived by Webster, and exhibited by him in a drawing as early as the winter of 1865-66, long before Davis entertained any idea of it. The original of this drawing is in existence, and was produced in evidence, and is well authenticated. It exhibits the rigid lay; the wire-trough pivoted in two different positions, on a post near the extremity of the breast-beam, and to an arm projecting from the extremity of the lay; the driving or pushing slide, riding on the trough, with a projection indicating the latch, or other device for operating the wire; and even the cams to give the requisite movements. It also shows the wire-box, and the position of the end of the trough in relation thereto, the same as exhibited in the patent. In March, 1868, Webster exhibited this drawing to Davis and others, and explained it to them as representing a lay having a rigid shuttle-box, a driving-slide and latch moving upon a vibrating trough, the latch being operated by the wire-box. Davis was about that time engaged in making an improvement on the Weild loom before referred to, with a sliding shuttle-box, and parallel bars instead of a trough for the wire to slide between, and a pin for it to rest on. In July, 1868, he applied for a patent for this improvement, and obtained a patent in February, 1869. In that year Webster sent drawings to Weild, in England, to get out a patent for his invention in that country; but Weild declined to undertake it. These drawings show the entire invention in detail. In November, 1869, Webster having heard that the defendants were going to alter their Bigelow looms to Weild looms, sought an interview with them in order \*593 to induce them to adopt his improvement. He met one of the defendants and showed his original drawing, but without result. In April, 1870, he had another interview with them, and also with Davis, at their carpet works in New York. He exhibited his original drawing and the drawings which he had prepared for England. Davis advised the defendants that Webster's plan was no improvement on the Weild loom. He was evidently anxious that they should adopt his improvement, for which he had already got a patent. Further interviews took place; but the defendants declined to adopt Webster's improvement, and adopted Davis's in part,--so much of it, at least, as the sliding shuttle-box. It is clear

from the facts that up to this time Davis did not pretend to be the inventor of Webster's arrangement. But in the spring of 1870 Davis commenced to make a new loom, which he did not get into complete operation until the latter part of 1871. This is called the Sterling loom, and was made for the defendants. When completed it had in it the improvement claimed by Webster, and shown in his patent. At what time this particular form was adopted is not shown.

It is contended by the defendants that Davis had conceived the idea of using a rigid lathe with his wire-bar in the early part of 1868, and that, in the model which he prepared at that time for obtaining his patent, he exhibited the same latch devised by Webster, and operated in the same way by contact with the wire-box; and that he showed to the witness Crossley, by pinning his sliding shuttle-box fast to the lay, how it could be used with a rigid lay and shuttle-box. Then, why did he not claim the whole device when Webster exhibited it to him? Why did he advise the defendants that Webster's arrangement was no improvement on Weild's? But, if it were true that he did show these things in his model, and had he shown a trough instead of parallel bars; and if it were true that he regarded the idea as anything more than a possibility; and that he did, in fact, contemplate it as a perfected and practicable arrangement, so as to amount to invention,--the question would still remain, whether he or Webster was the first inventor. Both may have been original inventors, but only one of them could be the first. If Davis had put the invention into practical \*594 form and operation more than two years before Webster applied for his patent, then the patent would be void by reason of prior use. But the evidence is conclusive that he never undertook to put it into practical form until he made the Sterling loom, which was only commenced in 1870. Webster's application for his patent was made in June, 1870. Though this was proved without objection, and substantially conceded, the defendants say that it does not appear what the application was, nor how much it was altered before the patent was issued. This argument cannot avail, for the application is a public record, the contents of which the defendants and all others are presumed to know; and since they had it in their power to produce it, and did not, it must be presumed that it would not have served their purpose, but corresponded with the patent. The defence of prior use for two years, therefore, is not sustained; and the question comes back to simple priority of invention. Conceding that Davis was an original inventor, the earliest point of time that he can be regarded as such



was in the spring of 1868. But Webster had invented it before that time, and had made a drawing of it which, in March, 1868, he exhibited and explained to Davis. An invention relating to machinery may be exhibited either in a drawing or in a model, so as to lay the foundation of a claim to priority, if it be sufficiently plain to enable those skilled in the art to understand it. There is no doubt that Davis understood Webster's drawing; and he did not then claim that the invention belonged to himself.

The evidence relating to loom No. 50 leads in the same direction. This was a loom of the defendants which they commenced to alter in the latter part of 1870. Davis was not employed to make the alterations on this loom. According to Webster's testimony, which must, of course, from his relation to the case, be received with caution, but which seems to be corroborated by subsequent circumstances, Davis informed Webster at the latter's house, on Christmas day, 1870, that loom 50 had been taken down to be changed to what they had seen and explained to them in the office,--referring to Webster's previous explanation of his drawings,--and that he, Davis, had told Higgins that if he took that loom down and \*595 changed it to what they had seen Webster have, and explained in the office, it would be a Webster wire motion. In April Webster called, as he says, at the defendant's store, and saw N. D. Higgins, and they talked about this loom, and Webster claimed it as his invention, and told Higgins that he (Higgins) had seen the drawing of it at his house and mill. It is not seriously denied that this loom was made substantially on Webster's plan.

Another circumstance seems to us as having much weight in this connection. It was found that the loom No. 50, and the Sterling loom, when completed in 1871, worked with wonderful success; sometimes as many as sixty yards being woven on one loom in ten hours. If Davis was the inventor of the wire motion applied to these looms, why did he never apply for a patent for it? He was already a patentee of a different and inferior apparatus. He knew all about the method of going about to get a patent. He belonged to a profession which is generally alive to the advantages of a patent-right. On the hypothesis of his being the real inventor his conduct is inexplicable.

There is a great deal of evidence *pro* and *con* to which we have not adverted. It must suffice to say that we are satisfied, from the examination we have given to it, that Webster is entitled to the claim of being the first inventor.

The appellants' counsel has raised the question whether the defence of prior invention can be set up under the answer, which does not state it in the manner required by the statute. It denies, generally, it is true, that Webster was the original and first inventor of the improvement claimed in the patent; and specifies certain letters-patent issued in this country and in England in which it is alleged that the said invention, or material and substantial parts thereof, was described before any invention made by Webster, which is sufficient foundation for adducing such patents in evidence; but it does not give the name and residence of any person alleged to have invented the thing patented prior to Webster; it only states that it was used by and known to Davis. It is possible that this objection to the evidence would have been available if it had been taken in season. But we are not referred to anything to show that \*596 it was taken in the court below, or before the examiner when the witnesses were examined. In Roemer v. Simon (95 U. S. 214, 220), we held that the failure to interpose such objection before the final hearing is a waiver of the required notice in an equity suit.

It remains to consider the question of infringement. The defendants deny that they infringe the fifth claim of the patent, which is relied on by the complainants.

At the commencement of the cause, when a preliminary injunction was applied for, the defendants put in affidavits contesting the charge of infringement, but upon a very different ground from that on which the defence is now based. Then they relied on a non-user of the last element of the combination,--the operation of the latch by contact with the wire-box; now they rely on a different construction of the third element (the reciprocating driving slide) from that given to it by the complainants. They say that they do not use that element, construed as they construe it. The position originally taken is abandoned.

Nevertheless, it will throw light on the subject to see what the defendants said on the occasion referred to. It will at least bring their present position to the test of a first judgment formed by themselves at a time when it was very much to their interest to find discrepancies between what they used, and what the patent contained. Two affidavits were put in by the defendants at that time, one made by both the defendants jointly, and one by their superintendent, Mr. Duckworth. A previous suit brought on Webster's patent against the New Brunswick Carpet Company, in which the defendants, or at least their

machinist, Davis, had taken much interest, had just terminated in a decree sustaining the patent, rendered by Judge Nixon in the Circuit Court for the District of New Jersey. The defendants in their affidavit, dated June 24, 1874, say: 'That at the time defendants procured the looms referred to in the affidavits on the part of complainants in this suit, and used thereon tops of wire-boxes, as cams, to disengage the latches from shoulders on the heads of the wires, they did not know or suppose that Wm. Webster, or any one else except themselves and E. K. Davis, had a patent covering any part, \*597 or combination of parts, contained in said looms. . . . The Stirling loom, the No. 50 loom, and the three other Bigelow looms, mentioned in the affidavits on the part of the complainants, were all procured and put in operation with the tops of the wire-boxes, as cams to disengage the latches from the wireheads, a long time prior to the issuing of the Webster patent, on which this suit is brought, and before defendants knew that said Webster had applied for said patent. The first that said defendants knew or supposed that there was anything in any of said looms covered by letters-patent granted to said Webster was during the progress of this suit against the New Brunswick Carpet Company, referred to in said affidavits; and while the testimony was being taken therein, when they heard that a claim of that kind was being made, and on further inquiry were informed that said Webster would probably sustain his right to the combination mentioned in the fifth claim of his patent, on which said suit was pending, and that the use of the top of the wire-box as a cam to disengage the latch from the shoulders of the wire-heads was one of the elements or parts of that combination. After consulting counsel on the subject, they concluded that to avoid any question of doubt on that subject they would have all their looms which contained such tops to the wire-boxes altered by having such tops entirely removed, and having other provision made for operating the wires. They accordingly had such alterations made, which were all completed by the middle of May, 1874, since which time they have not had any looms, or used any looms, employing the top of the wire-box as a cam to disengage a latch from a wire-head, or for opening a latch to disengage from a wire-head, or to support a latch away from, or out of contact with, the wire-heads in its journey from one end of the box to the other, or to permit a latch to descend and catch a wire-head in any way, or for any other purpose. That they have not since the time of said alterations used, in any loom or looms, the top of a wire-box to lift or support, or to in any way operate or participate in the operation of a latch, and that they do not expect to

use any such top of a wire-box hereafter, but intend not to do so.'

The fact that this mode of resisting the charge of infringement \*598 is now abandoned furnishes very fair presumptive evidence of two things: first, that the substituted device for operating the latch was a mere equivalent of the wire-box in that regard; and, secondly, that the construction of the fifth claim on which they now take their stand could not have been a very obvious one.

That construction is, that the third element in the combination of the fifth claim of Webster's patent, and which is there called 'the reciprocating driving-slide,' refers, not to the slide which rides upon the trough or wire-bar and carries the latch (which they do use), but to the slide which rides upon the breast-beam and communicates the reciprocating motion to the other (which they do not use). It is undoubtedly true that in the body of the specification, where the patentee is describing the joint use of these slides, he does designate the slide on the breast-beam as the reciprocating or driving slide, and that on the trough as the withdrawing and pushing slide. But it is apparent that both of these slides are, in fact, reciprocating and driving slides. The one on the trough has a reciprocating motion and drives the wire into the lay. And when, as the patent points out, the other slide is not used,—that is to say, when the slide on the trough is directly connected with the motive power, or device, which gives the reciprocating motion,—it takes the place of both. The specification states this in so many words. It says: 'Fig. 4 represents a modification of the invention. The withdrawing and pushing slide B1 in this case becomes the driving-slide.' Again: 'Figure 7 represents a side view of the driving-slide B1, its pin B2, to which power is applied, and the withdrawing and transfer latch C and pusher C1, attached to the slide.' These figures relate to that form of the invention in which the slide on the breast-beam is not used.

Now, if we examine the language of the claim, it seems to us that all doubt as to its meaning is removed. It reads thus: 'In combination, the lay and its rigid shuttle-box, the pivoted wire-trough, *the reciprocating driving-slide, and the latch moving thereon*, the latter being operated by the wire-box,' &c. Obviously the reciprocating driving-slide here referred to is that slide on which the latch moves, and that is the slide which \*599 rides on the trough, and which is the only slide used in one modification of the invention. It can hardly be supposed that the

patentee intended to make the other slide, which he showed could, at any time, be dispensed with, an indispensable element in his claim. It would have rendered the claim a practical nullity. The important thing was the slide which rides on the trough.

The argument of the defendants' counsel on this subject is very ingenious and plausible; but we are forced to the conviction that the slide intended in the combination is that which is indispensable to the operation of the apparatus. And this must have been the conviction of the defendants themselves, as well as of their counsel, when they made the affidavit before referred to.

In conclusion, our judgment is, that Webster invented the combination described in the fifth claim of the patent; that the invention is sufficiently described in the specification to meet the requirements of the law; that it was not anticipated by any prior patent or invention; that it was never in public use or on sale for more than two years before the patent was applied for; and that the defendants have infringed it.

The decree of the Circuit Court must be reversed, and the cause remanded, with instructions to enter a decree in favor of the complainants, and to take such further proceedings as law and justice may require; and it is

*So ordered.*

MR. JUSTICE BLATCHFORD did not sit in this case, nor take any part in deciding it.

105 U.S. 580, 15 Otto 580, 26 L.Ed. 1177

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The primary Section 103 issue<sup>15</sup> presented by the parties is whether it would have been obvious to one of ordinary skill in the art in October of 1963 \* \* \* to combine Jones or Gordon with Evans in such a way as to produce the concept claimed in Cole. While the fact that the Examiner apparently did not consider a prior art patent disclosing a digital character generator deprives the Cole patent of its presumption of validity, I nevertheless conclude that Cole is not obvious based on Evans in light of Jones or Gordon.

<sup>15</sup> As explained in an earlier footnote, I conclude that Cole, if not anticipated by Dirks, is obvious from Dirks in light of Brown et al. and others. See n. 6, supra. [558 F.Supp. at 952, 217 USPQ at 431.]

Footnote 6 merely states:

<sup>6</sup> The use of both sawtooth and staircase (or stepping) waveforms for vertical and horizontal deflection in CRTs was common prior to 1960, as evidenced by the Brown and Gordon patents. \* \* \* It was a matter of designers' choice. Thus, if Dirks is distinguishable on the basis of its stepping in a vertical direction, Cole was nevertheless obvious from the prior art and invalid under 35 U.S.C. § 103. [558 F.Supp. at 948, 217 USPQ at 428.]

This was the extent of the district judge's obviousness analysis that included a mention of Dirks.

The excerpts indicate that it is not clear whether the district judge relied on Dirks in his obviousness analysis.<sup>3</sup> While the text speaks of combining Evans, Jones and Gordon, footnote 15 states that Cole was obvious in light of Dirks and Brown. The district judge seemed to have either ignored Dirks in the obviousness analysis or believed that an anticipatory reference such as Dirks need not or could not be included in such analysis. The factfindings

3. Contrary to majority's belief that appellees alone contributed to the district court's confusion, RCA also contributed to that confusion. In a footnote on page 39 of its Post-Trial Brief, RCA stated:

As noted earlier, the inoperativeness of the foreign Dirks patents removes them from pos-

fail to disclose to us the steps by which the district judge reached his obviousness conclusion. See *Kelley, supra*; *Morow, supra*. It is confusing as to whether he relied on or ignored Dirks in the factfindings regarding the "differences" between Cole and the prior art references. See *Packer, supra*. Failure to explicitly include Dirks in factfindings regarding the "differences" so as to provide an appellate court with a clear understanding of the basis of the district court's obviousness determination is reversible error. See *Golf City, supra*; *United Shoe, supra*.



**LINDEMANN MASCHINENFABRIK  
GMBH, Appellant,**

v.

**AMERICAN HOIST AND DERRICK  
COMPANY, Harris Press and Shear Di-  
vision, Commercial Metals Company,  
Appellees.**

No. 83-1178.

United States Court of Appeals,  
Federal Circuit.

March 21, 1984.

Assignee of patent No. 3,945,315 on hydraulic scrap shears brought action for infringement of certain claims of patent, and defendant counterclaimed for declaration that patent was invalid. The United States District Court for the Southern District of Texas, Ross N. Sterling, J., held patent claims invalid, and assignee appealed. The Court of Appeals, Markey, Chief

sible consideration as anticipatory references, \* \* \* and from consideration as to the obviousness of the Cole patent \* \* \*.

In addition, RCA, on page 18 of the same Post-Trial Brief, acknowledged HLA's arguments at trial regarding the obviousness of the Cole invention in light of Dirks.

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Judge, held that: (1) finding that inventions set forth in patent claims were anticipated by prior patent was clearly erroneous; (2) finding that inventions set forth in claims would have been obvious was clearly erroneous; (3) district court erred in concluding that patent specification was nonenabling; and (4) action was properly remanded for determination on infringement issue.

Reversed and remanded.

**1. Patents  $\S$ 314(2)**

In action challenging validity of patent, trial court's role in relation to patentability does not require it to conclude whether something was or was not "invented," or whether court subjectively considers invention "worthy" of patent protection; court's role is simply to determine whether patent's challenger carried burden of establishing invalidity. 35 U.S.C.A.  $\S$  282.

**2. Federal Courts  $\S$ 850**

While source of findings does not render "clearly erroneous" standard any less applicable or binding on appellate review, apparent absence of trial court's personal attention need not be disregarded. Fed. Rules Civ.Proc.Rule 52(a), 28 U.S.C.A.

**3. Federal Civil Procedure  $\S$ 2280**

Where adopted findings of fact are those proposed by party before trial, greater chance is created that those findings may be clearly erroneous. Fed.Rules Civ. Proc.Rule 52(a), 28 U.S.C.A.

**4. Federal Courts  $\S$ 752**

While Court of Appeals reviews judgments, not rhetoric in opinions, language in opinion, or in set of findings and conclusions, may indicate that numerous harmful errors of law produced erroneous conclusion and that decisional approach of district court led to judgment not supported in law by facts of record.

**5. Patents  $\S$ 324.55(2)**

In action challenging validity of patent, anticipation is factual determination, reviewable under "clearly erroneous" stan-

dard. 35 U.S.C.A.  $\S$  102(b); Fed.Rules Civ. Proc.Rule 52(a), 28 U.S.C.A.

**6. Patents  $\S$ 72(1)**

Anticipation of patent requires presence in single prior art reference disclosure of each and every element of claimed invention, arranged as in claim. 35 U.S.C.A.  $\S$  102(b).

**7. Patents  $\S$ 72(1)**

In deciding issue of anticipation, trier of fact must identify elements of claims, determine their meaning in light of specification and prosecution history, and identify corresponding elements disclosed in allegedly anticipating reference. 35 U.S.C.A.  $\S$  102(b).

**8. Patents  $\S$ 312(6)**

In action challenging validity of patent on hydraulic scrap shears, finding that inventions set forth in certain claims of patent were anticipated by prior patent was clearly erroneous, where district court's analysis treated claims as mere catalogues of separate parts, in disregard of part-to-part relationships which gave claims their meaning. 35 U.S.C.A.  $\S$  102(b).

**9. Patents  $\S$ 112.1**

Burden upon challenger of validity of patent is to introduce evidence of facts establishing invalidity, thus overcoming presumption of validity, and that evidence, if it is to carry the day, must be clear and convincing. 35 U.S.C.A.  $\S$  282.

**10. Patents  $\S$ 112.1**

In action challenging validity of patent, trial court erred in ruling that introduction of nonconsidered art weakened or eliminated statutory presumption of validity, and in adjusting required level of proof downward to "mere preponderance"; that clear and convincing standard may more easily be met when such nonconsidered art is more pertinent than cited art meant that determination of whether patent challenger had met its burden turned on relationship of uncited art to claimed invention. 35 U.S.C.A.  $\S$  282.



**11. Patents** ⇨312(1½)

To extent that examiner's consideration of uncited art is material in action challenging validity of patent, burden is on challenger to show that prior art had not been considered; challenger meets that particular burden by showing that uncited art is more relevant than that cited, just as patentee defeats uncited art by showing that its relevancy is equal to or less than that cited. 35 U.S.C.A. § 282.

**12. Patents** ⇨112.1

Though courts, in determining validity of patent, will give due respect to examiner's evaluation of prior art, they are not bound thereby.

**13. Patents** ⇨36.2(1)

In action challenging validity of patent, district court improperly discounted weight due evidence of commercial success because that success occurred abroad; showing of commercial success of claimed invention, wherever such success occurs, is relevant in resolving issue of nonobviousness. 35 U.S.C.A. § 103.

**14. Patents** ⇨16(1)

Having concluded in action challenging validity of patent that claimed invention would have been obvious from prior art, district court erred in looking only to see whether showing of commercial success was so overwhelming as to overcome that conclusion; all evidence must be considered before conclusion on obviousness is reached. 35 U.S.C.A. § 103.

**15. Patents** ⇨36(1)

In action challenging validity of patent, evidence of unexpected results may be strong support for conclusion of nonobviousness. 35 U.S.C.A. § 103.

**16. Patents** ⇨26(1)

Fact that patent specifically stated that it disclosed and claimed combination of features previously used in two separate devices is not fatal to patentability; claimed invention must be considered as a whole, and question is whether there is something in prior art as a whole to sug-

gest desirability, and thus obviousness, of making combination. 35 U.S.C.A. § 103.

**17. Patents** ⇨36(3)

In action challenging validity of patent on hydraulic scrap shears, district court's finding that inventions set forth in certain claims of patent would have been obvious was clearly erroneous, where nothing in prior art relied on as invalidating had any relation to crushing of massive metal scrap which was distinguishing feature of shears. 35 U.S.C.A. § 103.

**18. Patents** ⇨99, 314(5)

In action challenging validity of patent, enablement is legal issue, and question is whether disclosure is sufficient to enable those skilled in art to practice claimed invention, and thus specification need not disclose what is well known in art. 35 U.S.C.A. § 112.

**19. Patents** ⇨312(6)

In action challenging validity of patent on hydraulic scrap shears, finding that patent was nonenabling because it did not disclose hydraulic and electrical system for controlling operation of rams was clearly erroneous, in light of unchallenged evidence establishing that hydraulic and electrical systems for metal scrap shears were well known to those skilled in art. 35 U.S.C.A. § 112.

**20. Patents** ⇨323.1

District court should decide validity and infringement and should enter judgment on both issues when both are raised in same patent proceeding.

**21. Patents** ⇨324.60

Where district court, in action on validity and infringement of patent, merely stated in record that patent had probably been infringed, but made no finding and entered no judgment on infringement, case was properly remanded.

David Toren, New York City, argued, for appellant. With him on brief was Jules Goldberg, New York City.

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LINDEMANN MASCHINENFABRIK v. AM. HOIST AND DERRICK 1455

Cite as 730 F.2d 1452 (1984)

Michael E. Macklin, Houston, Tex., argued, for appellees. With him on brief was Edward W. Goldstein, Houston, Tex.

Before MARKEY, Chief Judge, COWEN, Senior Circuit Judge, and BENNETT, Circuit Judge.

MARKEY, Chief Judge.

Appeal from the May 23, 1983, judgment of the District Court for the Southern District of Texas, sitting without a jury and holding invalid claims 1, 2, and 4 of appellant's (Lindemann's) U.S. Patent No. 3,945,315 issued March 23, 1976 and entitled "Hydraulic Scrap Shearing Machine". We reverse and remand.

BACKGROUND

*The Patent*

United States Patent No. 3,945,315 ('315) issued March 23, 1976 on an application filed April 16, 1975. Peter Dahlem and Hubert Milles are named co-inventors and Lindemann is listed as the assignee. The '315 patent claims a priority filing date, under 35 U.S.C. § 119, of May 13, 1974, based on West German application 2423003.

Hydraulic scrap shears, the subject matter of the '315 patent, are a principal tool of the scrap metal industry. The shears are large, often weighing several hundred tons, and are designed to cut scrap metal into smaller, uniform pieces for recycling.

There are two basic types of metal processed in the shears: "peddler's scrap" and "rigidly massive scrap".

Peddler's scrap consists of light to medium gauge metal objects, such as light tubing, automobile bodies, and window frames. It makes up a large percentage of the available scrap and is comparatively easy to process.

Rigidly massive scrap consists of heavy gauge metal objects, such as boilers, oil

tanks, and railroad cars. Because of thickness or internal reinforcements, massive scrap objects are difficult to process. Traditionally, massive scrap had been processed in very large, tremendously powerful shears, or had been pretreated, e.g., with oxyacetylene torches, to reduce its size or weaken its internal reinforcements. Either approach was costly and time-consuming. Many scrap dealers handled peddler's scrap exclusively.

*The Invention*

The '315 patent contains five claims. Claim 1, the only independent claim, is written in Jepson form:

1. In a hydraulic scrap-shearing machine comprising an open feed channel having two opposing side walls, scrap shears at one end of said feed channel and having a mouth narrower than the normal width of said feed channel between said side walls, hydraulic means for moving at least one of said side walls towards the other of said side walls whereby scrap placed in said feed channel can be squashed to a final width no greater than the width of said mouth of said scrap shears, and a feeder ram for pushing scrap along said feed channel into said mouth of said scrap shears, the improvement consisting of said movable one of said side walls being divided into two longitudinal portions of different lengths, and said hydraulic means comprising a main hydraulic ram having a working face forming the longer portion of said movable side wall, and an auxiliary hydraulic ram having a working face forming the shorter portion of said movable side wall just upstream of said mouth of said scrap shears, said auxiliary hydraulic ram being capable of operation independently of said main hydraulic ram.

The claimed structure is shown in Figure 2 of the '315 patent:

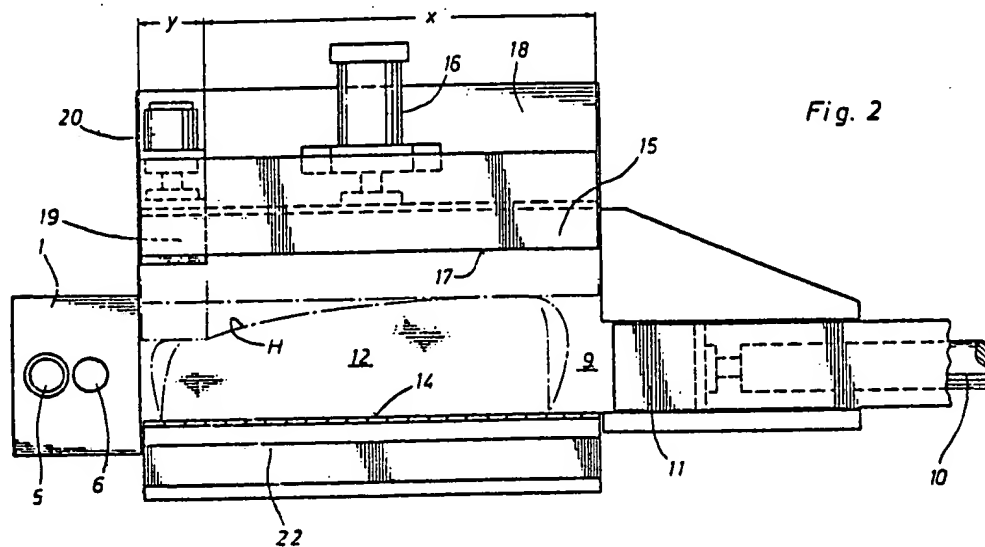


Fig. 2

In operation, the combined rams (17, 19) advance into the feed channel (9), crushing and compacting the scrap (12) against the other, non-movable sidewall (14). With peddler's scrap, the two rams move the entire distance together. However, when the channel contains rigidly massive scrap, such as shown at (12), the two rams are quickly brought to a standstill by the scrap's resistance to crushing. The auxiliary ram (19) is then moved forward independently of the main ram (17). The auxiliary ram, having a smaller working surface than the combined rams, is capable of applying a greater crushing force to the scrap. The auxiliary ram cracks and buckles the scrap directly in front of it to crush the leading end of the scrap so it can be pushed through the mouth of the shears. That action also propagates that effect to an adjacent area (H) of the scrap. The structural integrity of the scrap is thus overcome by the auxiliary ram, thereby reducing the resistance of the portion of the scrap in contact with the main ram, allowing both rams to continue forward to crush the scrap to a width less than that of the shear mouth. The feeder ram (11) then pushes the crushed scrap through the mouth of the shear and under the shear blades (at 5) and clamp (at 6). The clamp

holds the crushed scrap in place during cutting.

The claimed invention allows one machine of moderate size to process both peddler's and rigidly massive scrap, and to do so quickly, inexpensively, and without the need for pre-treating massive scrap. Unchallenged testimony described crushing accomplished in minutes of scrap that would have required hours to crush in earlier larger machines and that could not have been crushed without pretreatment.

#### *District Court Proceedings*

On October 5, 1980, Lindemann sued appellees (collectively "Amhoist") for infringement of claims 1, 2, and 4 of the '315 patent. Amhoist asserted non-infringement and counterclaimed for a declaratory judgment that the '315 patent is invalid.

A three day trial was conducted on June 21-23, 1982. On May 23, 1983, the district court entered FINDINGS OF FACT AND CONCLUSIONS OF LAW, the introduction of which stated:

After hearing all the evidence the Court concludes that the patent is invalid. Plaintiff simply incorporated two admittedly well-known metal compression features in the same machine and sought to gain a monopoly in the use of knowledge

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that had previously existed in the public domain. The Court finds and concludes that the claimed invention of the Plaintiff does not meet the statutory or constitutional requirements established for patent protection. Specifically, the machine was an obvious aggregation of prior art which produced no new or synergistic result. It failed materially to promote the progress of science and the useful arts.

The district court entered 60 findings and 20 conclusions indicating its view that the '315 patent is invalid under 35 U.S.C. § 102(b), 35 U.S.C. § 103, and 35 U.S.C. § 112.

[1] On May 24, 1983 the district court entered judgment declaring the '315 patent invalid. The judgment is silent respecting infringement, though the district court had stated from the bench at end of trial:

Well, if the '315 patent is valid, I think the proof is clear that it has been infringed and it is pretty clear that it was done with knowledge, conscious knowledge to the point of willful infringement.<sup>1</sup>

Issues

I. Whether the district court erred in finding the inventions set forth in claims 1, 2, and 4 anticipated by U.S. Patent 3,763,770 ('770) under 35 U.S.C. § 102(b).

II. Whether the district court erred in concluding that the inventions set forth in claims 1, 2, and 4 would have been obvious under 35 U.S.C. § 103.

III. Whether the district court erred in concluding that the '315 patent specifica-

1. The district court stated at the same time, "But I am not certain in my own mind at this point whether or not these gentlemen on the '315 patent invented anything". The statement reflects a misconception of the role of the courts under 35 U.S.C. § 103. The question mandated by statute is not "invention"; it is *patentability*. See *Rich, Escaping the Tyranny of Words—Is Evolution in Legal Thinking Impossible?*, 60 JPOS 71, May-June/APLA Bull. 237 (1978).

Moreover, the court's role in relation to patentability does not require it to conclude whether

tion was non-enabling under 35 U.S.C. § 112.

IV. Whether this court on remand should order entry of a judgment that claims 1, 2, and 4 were infringed by Amhoist.

OPINION

[2, 3] Of the district court's 60 findings, 57 were those submitted by Amhoist before trial. The source of findings does not render the "clearly erroneous" standard of Fed.R.Civ.P. 52(a) any less applicable or binding. *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, n. 4 (Fed. Cir.1984). In adhering firmly to that rule, however, an apparent absence of personal attention need not be disregarded. See *Amstar Corporation v. Domino's Pizza, Inc.*, 615 F.2d 252, 258, 205 USPQ 969, 974 (5th Cir.1980), *Wilson v. Thompson*, 593 F.2d 1375, 1384 n. 16 (5th Cir.1979). Under such circumstances, one court has indicated that strict scrutiny is appropriate. See *Smith International, Inc. v. Hughes Tool Co.*, 664 F.2d 1373, 215 USPQ 592 (9th Cir.1982). Where, as here, the adopted findings are those proposed by a party before trial, a greater chance is created that those findings may be clearly erroneous. Indeed, the present findings include some for which no supporting evidence was submitted at trial.

Having written them, Amhoist argues strenuously for retention of the findings behind the shield of the "clearly erroneous" rule, and repeatedly reminds us of our duty to review the findings favorably and of the burden resting on the appellant.

er something was or was not "invented", or whether the court subjectively considers the invention "worthy" of patent protection. The court's role is actually more simple. Under the statute, it is to determine whether the patent's challenger carried the burden of establishing invalidity. 35 U.S.C. § 282. See *Environmental Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 218 USPQ 865 (Fed.Cir.1983), *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed.Cir.1983), *Rosemount, Inc. v. Beckman Instruments*, 727 F.2d 1540 (Fed.Cir.1984).

However salutary, the rules governing review do not envision an appellate court shirking its duty to reverse an appealed judgment that is clearly based on legal error and unsupported by evidence in the record.

[4] We review judgments, not the rhetoric in opinions. Nonetheless, the language in an opinion, or in a set of findings and conclusions, may indicate that numerous harmful errors of law produced an erroneous conclusion, and that the decisional approach of the district court led to a judgment not supported in law by the facts of record. That happened here.

#### I. Anticipation

[5] Anticipation is a factual determination, reviewable under the "clearly erroneous" standard. *Carman Industries Inc. v. Wahl and Vibra Screw Inc.*, 724 F.2d 932 (Fed.Cir.1983), *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed.Cir.1983), F.R.C.P. 52(a). "A finding is 'clearly erroneous' when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed". *United States v. U.S. Gypsum Co.*, 333 U.S. 364, 395, 68 S.Ct. 525, 542, 92 L.Ed. 746, 76 USPQ 430, 444 (1948); *SSIH Equip. S.A. v. USITC*, 718 F.2d 365, 381, 218 USPQ 678, 692 (Fed.Cir. 1983).

[6, 7] Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed.Cir.1983); *SSIH Equip. S.A. v. USITC*, 718 F.2d 365, 218 USPQ 678 (Fed.Cir.1983). In deciding the issue of anticipation, the trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the alleged-

ly anticipating reference. *SSIH, supra*; *Kalman, supra*.

[8] Lindemann contends the district court's finding on anticipation is clearly erroneous and we agree.

The finding of anticipation rested on a series of mistakes. The two gags of the '770 patent do not correspond to "said sidewall being divided into two portions of different lengths". The gags are beyond the end of the wall and constitute no part of a feed channel sidewall as claimed. The court found the '770 patent's magazine corresponded to the claimed "open feed channel having two opposing walls", but the "movable" wall of the magazine is movable only to adjust the magazine's width and not, as the claim requires, to crush scrap. Moreover, the findings that the magazine is the feed channel and that the gags are parts of a sidewall of the channel contradict each other. Nor does the shear anvil of the '770 patent, as the court stated, correspond to the "opposite sidewall" of the claim. Nor do the cylinder assemblies of the '770 patent move one sidewall of a feed channel toward the other as the claims require. Nor are the '770 patent's cylinder and gag (equated by the court to the claimed auxiliary ram) located "just upstream of said mouth". They are within the shear area and are thus downstream from where a mouth narrower than the feed channel would be if the '770 patent disclosed such a mouth, which it does not. Similarly, the other cylinder and gag of the '770 patent do not form a "longer portion of said movable sidewall". Nor can the channel that receives rod cuttings after shearing be equated, as did the district court, with the shear mouth claimed.<sup>2</sup>

The '770 patent discloses an entirely different device, composed of parts distinct from those of the claimed invention, and operating in a different way to process different material differently. Thus there is presented here no possible question of

2. Amhoist says Lindemann's Australian counsel "conceded" that the '770 patent cited by the Australian examiner was a "paper anticipation". The assertion is meaningless. First, the '315

patent's counterpart issued in Australia. Second, the language and laws of other countries differ substantially from those in the United States.

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anticipation by equivalents. See *Tate Engineering, Inc. v. United States*, 477 F.2d 1336, 1342, 193 Ct.Cl. 1088, 175 USPQ 115, 119 (Ct.Cl.1973). It is clear, moreover, that the device disclosed in the '770 patent, had it come after issuance of the '315 patent, could not be found an infringement of the asserted claims. The district court's analysis treated the claims as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning.

On the unchallenged evidence of record, we are left with a "definite and firm conviction" that the district court's finding of anticipation was mistaken and therefore clearly erroneous. That part of its judgment relating to invalidity under 35 U.S.C. § 102(b) must therefore be reversed.

## II. Obviousness

### A. Presumption of Validity

Guided by remarks found in then applicable court opinions, the district court: (1) viewed the statutory presumption of validity, 35 U.S.C. § 282, as "vanished" or "severely weakened" when Amhoist introduced prior art not cited by the examiner; (2) reduced the required burden of proof, in light of that introduction, to a "mere preponderance";<sup>3</sup> and (3) implicitly required Lindemann to prove that the uncited art had been considered by the PTO.

(1) Courts are not, of course, at liberty to repeal a statute, or to legislate conditions diminishing its effect. Hence the statutory presumption cannot "vanish" or be "weakened" and the statutorily assigned burden of proof cannot be shifted. *Stratoflex Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed.Cir.1983). At the same time, much confusion can be avoided by patentees who refrain from efforts to expand the role of the presumption

3. The district court in a conclusion of law also stated that "under any burden of persuasion the '315 patent is invalid because of obviousness". As indicated in the text, we disagree.

4. The district court indicated the view that "the 'Field of Search' is exactly what it purports to be and nothing more, that 'References Cited' are

beyond its burden-assigning and decisional approach-governing function.

[9,10] (2) The burden upon the challenger of validity under 35 U.S.C. § 282 is to introduce evidence of facts establishing invalidity (thus overcoming the presumption). *American Hoist & Derrick Company v. Sowa & Sons, Inc.*, 725 F.2d 1350 (Fed.Cir.1984). That evidence, if it is to carry the day, must be clear and convincing. *Radio Corp. v. Radio Laboratories*, 293 U.S. 1, 55 S.Ct. 928, 78 L.Ed. 1453 (1934). Because the mere introduction of non-considered art (a common phenomenon) does not "weaken" or otherwise affect the presumption, there is no basis for adjusting the required level of proof downward to a "mere preponderance". That the clear and convincing standard may more easily be met when such non-considered art is more pertinent than the cited art means that determination of whether the patent challenger has met its burden turns on the relationship of the uncited art to the claimed invention. *Stratoflex, supra*; *Railroad Dynamics Inc. v. A. Stucki Co.*, 727 F.2d 1506 (Fed.Cir.1984), *Solder Removal v. USITC*, 582 F.2d 628, 199 USPQ 129 (CCPA 1978).

(3) Similarly, the parties have devoted much unnecessary argument to the question of whether Lindemann is entitled to a presumption that the examiner had considered the uncited art because it is found in the classes and subclasses searched by the examiner (and because, as Lindemann says, the examiner had cited that art in examining an earlier application). Authorities are cited on both sides.<sup>4</sup>

[11,12] Because the touchstone is whether the uncited art is sufficiently more relevant than that cited to serve as evidence of obviousness, argument respecting

the patents found within the field which were actually considered by the examiner and listed because he found them to be most relevant". That view is flawed. The examiner could not determine which patents are "most relevant" without considering a number which are less relevant.



a presumption based on the uncited art's classification is pointless. The argument here, moreover, appears to have led to the erroneous view that Lindemann bore the burden of proving that the uncited art had been considered. To the extent that the examiner's consideration of uncited art is material, the burden is on the challenger to show that "that prior art had *not* been considered." *Richdel Inc. v. Sunspool Corp.*, 714 F.2d 1573, 219 USPQ 8 (Fed.Cir. 1983). The challenger meets that particular burden by showing that the uncited art is more relevant than that cited, just as the patentee defeats the uncited art by showing that its relevancy is equal to or less than that cited.<sup>5</sup>

#### B. Scope and Content of the Prior Art<sup>6</sup>

"The scope of the prior art has been defined as that 'reasonably pertinent to the particular problem with which the inventor was involved'." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed.Cir.1983) (and cases cited therein). The district court defined the problem here broadly, i.e., as the problem of compressing waste materials. That finding is clearly erroneous. The inventors' problem was the crushing of massive metal scrap. Nothing in the prior art relied on as invalidating had any relation whatever to the crushing of massive metal scrap.

Lindemann attempts too much in arguing that waste compactors are non-analogous. Though the problems differ, both parties manufacture both products and both are exhibited at the same trade shows. Art that is analogous may or may not render a claimed invention obvious. As indicated below, it does not do so here.

5. Though the courts will give due respect to the examiner's evaluation of prior art, they are not of course bound thereby. Patentees desiring the benefit of the examiner's evaluation of originally uncited art have available the reexamination procedures under 35 U.S.C. §§ 301-307. Those procedures were not employed in this case.

6. The level of skill is not of record and is not discussed in the briefs.

The content of the prior art discussed in Amhoist's brief is that disclosed in the '770 patent (discussed above) and in British Patent No. 1,230,014 ('014).<sup>7</sup>

The '014 patent discloses a compactor for particulate waste, e.g., garbage. The loose waste is pressed into the wide mouth of a funnel by a circular plate. The smaller end of the funnel communicates with a container to receive the compacted waste. A small finger-like ram is coaxial with, and normally moves with, the plate. When the material fills the funnel so tightly that the plate can add no more, the separately operable small ram can be advanced ahead of the main ram and into the waste material. The small ram has a diameter smaller than that of the funnel outlet. When the small ram has pressed a core of waste material through the funnel outlet, the remaining waste material is loosened and additional waste material may then be pressed into the funnel by the plate and ram working together.

In a conclusion of law, the district court stated that it had considered the facts in light of the inquiries mandated by *Graham v. John Deere & Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ 459 (1966), and that a strong indication supporting its conclusion of obviousness was "the fact that three individuals independently created the designs which resulted in development of the split ram shears which are the subjects of this lawsuit". Because the statute, 35 U.S.C. § 135, (establishing and governing interference practice) recognizes the possibility of near simultaneous invention by two or more equally talented inventors working independently, that occurrence may or may not be an indication of obviousness when considered in light of all the circumstances. See *E.I. DuPont de*

7. The district court additionally discussed the S-501 shear produced by Amhoist and incorporating a tapered feed channel with a single side ram about one foot from the shear mouth. Amhoist correctly recognizes on appeal the absence of need to discuss the S-501 shear.

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*Nemours & Co. v. Berkley & Co.*, 620 F.2d 1247, 205 USPQ 1 (8th Cir.1980). In this instance, it clearly is not. Two of the three individuals were Dahlem and Milles, the co-inventors listed on the '315 patent. The third was an Amhoist employee who claimed at trial to have proposed the split ram in January of 1979, more than five years after the invention was made by Lindemann's assignors, nearly three years after the '315 patent issued, and well after Amhoist's employee Bleeland had in England observed and photographed a Lindemann shear embodying the claimed invention. Accepting, as we must, the district court's crediting of the testimony respecting independent suggestion by an Amhoist employee, that suggestion was simply too late to have been relevant to a determination of whether the invention would have been obvious at the time it was made, 35 U.S.C. § 103, which was more than five years earlier.

C. Commercial Success.

[13] The district court improperly discounted the weight due the evidence of commercial success because that success occurred abroad. A showing of commercial success of a claimed invention, wherever such success occurs, is relevant in resolving the issue of non-obviousness. *Weather Engineering Corp. v. United States*, 614 F.2d 281, 222 Ct.Cl. 322, 204 USPQ 41 (1980).

[14] The evidence at trial showed that the claimed invention accounted for 30% of Lindemann's total sales worldwide for a total sales price of over \$20,000,000 (30 machines at approximately \$667,000 each). The district court correctly stated that commercial success cannot by itself establish nonobviousness. However, having concluded that the claimed invention would have been obvious from the prior art, the court looked only to see whether the showing of commercial success was so overwhelming as to overcome that conclusion. That was error. All evidence must be considered before a conclusion on obviousness is reached. *Stratoflex, Inc. v. Aeroquip*

*Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir.1983), *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 219 USPQ 857 (Fed.Cir.1983), *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 314 (Fed.Cir. 1983). The commercial success here shown is evidence that the claimed invention was not obvious to those who paid  $\frac{2}{3}$  of a million dollars for each machine to escape the previously perceived need for pretreatment of massive scrap.

D. Unexpected Results

[15] The district court ignored the unexpected or surprising results achieved by the claimed invention. Though no requirement for such results is present in the statute, 35 U.S.C. § 103, *Chore-Time Equipment, Inc. v. Cumberland Corp.*, 713 F.2d 774, 218 USPQ 673 (Fed.Cir.1983), evidence of unexpected results may be strong support for a conclusion of nonobviousness. *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 219 USPQ 857 (Fed.Cir.1983).

Neither the district court nor Amhoist's brief on appeal has a word to say about the unexpected results asserted by Lindemann, namely, the rapid crushing of rigidly massive scrap in a moderate sized scrap shear without pretreatment. That the claimed inventions achieve those results is unchallenged. Neither the district court nor Amhoist suggest anything in any piece of prior art, or in the prior art as a whole, that would lead one skilled in the art to expect achievement of such results.

The record is clear that no earlier shears of any size, and no prior art device of any type could economically process rigidly massive scrap without pretreatment. Unchallenged testimony of experts was characterized by surprise and amazement that the claimed invention was able to accomplish that feat. That it could do so in minutes, and with a moderate sized structure, were further sources of surprise. That those skilled in the art had previously believed pretreatment of rigidly massive scrap was required was also uncontradicted.

It is further clear from the uncontradicted evidence that the claimed invention achieved new and unexpected results nowhere suggested in the prior art, and that the district court overlooked the effect of that achievement in reaching its determination of obviousness. In so doing, the district court erroneously focussed its inquiry "solely on the product created, rather than on the obviousness or nonobviousness of its creation". *General Motors Corp. v. U.S. International Trade Commission*, 687 F.2d 476, 482-83, 215 USPQ 484, 489 (CCPA 1982).

The district court viewed the claimed invention as merely the "aggregation" of two different sized rams. Finding the first in one place in the prior art and the second in another place, the district court entered this conclusion:

Plaintiff simply put the two features in the same machine and connected them as was necessary depending on whether the scrap was small or large. It used a known connection idea. The '315 machine possessed one known feature to operate in a known way to produce a known result to deal with the first scrap situation and another known feature operating in a known manner to produce a known result to deal with the second. Clearly, this was an obvious solution using already appreciated or obvious features to solve the problem of how to develop a machine that could handle both types of scrap most economically.

[16] The '315 patent specifically stated that it disclosed and claimed a combination of features previously used in two separate devices. That fact alone is not fatal to patentability. The claimed invention must be considered as a whole, and the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *In re Imperato*, 486 F.2d 585, 179 USPQ 703 (CCPA 1973); *In re Sernaker*, 702 F.2d 989, 217 USPQ 1 (Fed. Cir.1983). That question must here be answered in the negative.

Nothing in the references alone or together suggests the claimed invention as a solution to the problem of crushing rigidly massive scrap. There was nothing whatever of record, therefore, to support the district court's statement that the claimed machine possessed "another known procedure operating in a known manner to produce a known result" or its conclusion that Lindemann "knew ... that a small sidewall ram could most economically process large scrap".

The '014 patent deals only with soft, easily compactible, particulate material. Though that patent discloses a two-ram structure and the principle that loose material when too tightly compacted can be loosened by injection of a thin ram into the material, the claims here are not drawn to the mere concept of two differently sized rams, or to the known principles governing the effects of large and small rams (or to the propagation of force principle discussed at trial). That the claimed invention may employ known principles does not in itself establish that the invention would have been obvious. Most inventions do. Nothing in the '014 patent would suggest that rigidly massive scrap could be rapidly and economically crushed and sheared without pretreatment.

The '770 patent, as above indicated, deals only with holding brittle material within a shear by compression. Nothing in the '770 patent suggests that making the crushing wall of a metal scrap shear in two independently operable parts, with a smaller part adjacent the mouth of the shears, would enable the crushing of massively rigid scrap without pretreatment.

Nothing, moreover, in the '014 or '770 patents adds anything to the prior art considered by the examiner. As above indicated, the '315 specification itself recognized the separate presence in the prior art of feed channels with one solid moveable crushing wall and of feed channels with a small ram in one of two fixed sidewalls. The examiner cited as "of interest" the Pioch patent which, like the '014 patent,

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Cite as 730 F.2d 1452 (1984)

disclosed two independently operable pushers in a waste compactor.

[17] Applying the standard of Rule 52(a), Fed.R.Civ.P., we are persuaded that the findings underlying the district court's conclusion of obviousness are clearly erroneous. Further, that conclusion resulted from errors of law in interpreting the claims and in consideration and application of the prior art. That part of the appealed judgment relating to 35 U.S.C. § 103 must therefore be reversed.

III. Enablement

The district court concluded that the '315 patent was non-enabling because it did not disclose a hydraulic and electrical system for controlling the operation of the rams.

[18] Enablement is a legal issue. *Raytheon Co. v. Roper Corp.*, 724 F.2d 951 (Fed.Cir.1983). The question is whether the disclosure is sufficient to enable those skilled in the art to practice the claimed invention, hence the specification need not disclose what is well known in the art. *In re Myers*, 410 F.2d 420, 161 USPQ 668 (CCPA 1969).

The unchallenged evidence of record establishes that hydraulic and electrical systems for metal scrap shears were well known to those skilled in the art, and that the selection and connection of the elements of such systems was simply a matter of plumbing.

Amhoist points to testimony relating to 800 man hours it expended in developing its split ram shear. It also points to the dismantling of the accused machines by its two customers, whereby the rams are operated together as one sidewall and asserts that the split ram structure of the claimed invention has thus been abandoned by those customers.<sup>8</sup> There is no evidence indicating that the dismantling was due to difficulty in designing a suitable hydraulic-electric control system.

8. The record does not reflect the rationale underlying a vigorously fought lawsuit and its accompanying expense in the light of two sales

It is clear that no undue experimentation was required in practicing the claimed invention. *W.L. Gore & Assoc. Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1557, 220 USPQ 303, 316 (Fed.Cir.1983). Amhoist spent approximately 100 more hours than did Lindemann in designing the entire split ram shear, including the hydraulic-electric control system. There was no evidence of the amount of time needed to develop the control system itself. Of the total time Amhoist spent on developing its shear, it devoted an undisclosed amount attempting to create a "hydraulically operated pin" to connect the two rams. That pin was unnecessary. The '315 patent's specification discloses a simple mechanical pin to achieve the same connection. Further, Amhoist conceded at oral argument that nothing in the claims fails of enablement in the specification.

[19] The district court erred in its conclusion that the '315 patent specification is non-enabling and that part of the appealed judgment relating to 35 U.S.C. § 112 must be reversed.

IV. Infringement

Relying on the statement made by the district court at close of trial, and on the uncontested evidence clearly establishing Amhoist's knowledge of the '315 patent and its conscious decision to disregard it, Lindemann requests this court to "affirm" the district court's "decision" on infringement. Lindemann's difficulty is that judgments, not statements, are appealed and the district court made no finding and entered no judgment on infringement.

[20] A district court should decide validity and infringement and should enter a judgment on both issues when both are raised in the same proceeding. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed.Cir.1983). To enter judgment on less than all dispositive issues can be inefficient, risking as it does the necessity of the district court and the parties

and both purchasers' cessation of use of the invention.

undertaking participation in another long and costly proceeding.

[21] The case must be remanded for the district court to make a finding on infringement. Whether the present record supports a finding corresponding with the court's end-of-trial statement, and whether further trial on the issue is therefore unnecessary, is for the district court to determine in the first instance. Upon any finding of infringement and entry of judgment on that finding, the district court will doubtless consider issuance of an injunction against further infringement and an accounting.

#### DECISION

The district court's judgment is reversed and the case is remanded for further proceedings consistent with this opinion.

REVERSED and REMANDED.



Janet L. CROSTIC, Petitioner,

v.

VETERANS ADMINISTRATION,  
Respondent.

No. 84-886.

United States Court of Appeals,  
Federal Circuit.

March 21, 1984.

On appeal from Merit Systems Protection Board, petitioner brought motion for order compelling filing of transcript of administrative hearing in lieu of appendix and in lieu of certified list of docket entries. The Court of Appeals held that in light of two-fold purpose of appendix to set out most pertinent parts of record and to provide each judge with such materials, motion for filing of transcript in lieu of appen-

dix and certified list of docket entries was properly denied.

Motion denied.

#### 1. Administrative Law and Procedure §677

In light of two-fold purpose of appendix to set out most pertinent parts of record and to provide each judge hearing case with such materials, petitioner's motion for order compelling filing of transcript of administrative hearing in lieu of appendix and in lieu of certified list of docket entries was properly denied.

#### 2. Administrative Law and Procedure §677

Appellate appendix need not be made part of printed brief or be separately printed and professionally bound; it may, in most cases, be prepared in counsel's office by photocopying papers in counsel's duplicate file and it may be bound by staples and tape.

#### 3. Administrative Law and Procedure §677

Appellate appendix should include only most significant portions of record below.

Peter B. Broida, Washington, D.C., for petitioner.

Alvin A. Schall, Washington, D.C., for respondent.

Before MARKEY, Chief Judge, and FRIEDMAN and NIES, Circuit Judges.

#### ORDER

Consideration has been given to petitioner's motion for an order compelling the filing of the transcript of the administrative hearing in lieu of an appendix and in lieu of the certified list of docket entries. The argument is made that the transcript runs a total of 648 pages and that the costs of reprinting could be avoided while the bulk of the brief and appendix which the court must consider would be reduced. It

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